

ECONOMIC DEVELOPMENT

Fourth Edition

E. Wayne Nafziger

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In this fourth edition of his textbook, E. Wayne Nafziger analyzes the economic development of Asia, Africa, Latin America, and East-Central Europe. The treatment is suitable for students who have taken a basic college course in the principles of economics. This comprehensive and clearly written text explains the growth in real income per person and income disparities within and among developing countries. The author explains the reasons for the fast growth of Pacific Rim countries, Brazil, Poland, and (recently) India, and the increasing economic misery and degradation of large parts of sub-Saharan Africa. The book also examines China and other postsocialist economies as low- and middle-income countries, without, however, overshadowing the primary emphasis on the third world. The text, written by a scholar active in economic research in developing countries, is replete with real-world examples. The exposition emphasizes the themes of poverty, inequality, unemployment, the environment, and deficiencies of people in less-developed countries, rather than esoteric models of aggregate economic growth. The guide to the readings, through bibliography as well as Web sites with links to development resources, makes this book useful for students writing research papers.

E. Wayne Nafziger is University Distinguished Professor of Economics at Kansas State University. He is the author and editor of sixteen books and numerous journal articles on development economics, income distribution, development theory, the economics of conflict, the Japanese economy, and entrepreneurship. His book, *Inequality in Africa: Political Elites, Proletariat, Peasants, and the Poor* (Cambridge University Press), was cited by *Choice* as an Outstanding Academic Book for 1989–1990. Professor Nafziger is also the author of *The Debt Crisis in Africa* (1993) and the editor (with Frances Stewart and Raimo Vayrynen) of the two-volume *War, Hunger, and Displacement: The Origins of Humanitarian Emergencies* (2000). He has held research positions at the U.N. University's World Institute for Development Economics Research, the Carter Center, the East–West Center, and in Nigeria, India, Japan, and Britain.

Economic Development

FOURTH EDITION

E. Wayne Nafziger

Kansas State University

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To H. M. A. Onitiri, Aaron Gana, B. Sarveswara Rao,
M. Jagadeswara Rao, R. Sudarsana Rao, and Hiroshi Kitamura

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Abbreviations and Measures

Abbreviations

ASEAN	Association of Southeast Asian Nations
DCs	Developed (high-income) countries
E.U.	European Union
FAO	Food and Agriculture Organization of the United Nations
G7	Group of Seven, meeting of the seven major DCs: the United States, Canada, Japan, the United Kingdom, Germany, France, and Italy (EU representative also attends)
G8	Group of Eight, meeting of G7 plus Russia
GATT	General Agreements on Tariffs and Trade, the predecessor to the WTO
GDP	Gross domestic product
GNI	Gross national income (same as GNP)
GNP	Gross national product
HDI	Human Development Index, UNDP's measure of development
ILO	International Labour Organization
IMF	International Monetary Fund
LDCs	Less-developed (developing) countries
LICs	Low-income countries
LLDCs	Least-developed countries
MDGs	Millennium Development Goals (U.N., 2000)
MNCs	Multinational (transnational) corporations
NGOs	Nongovernmental (nonprofit) organizations
NICs	Newly industrializing countries
NNP	Net national product
OECD	Organization for Economic Cooperation and Development, comprising high-income countries (including Republic of Korea) plus Czech Republic, Hungary, Mexico, Poland, Slovak Republic, and Turkey
PQLI	Physical Quality of Life Index
PRI	*Partido Revolucionario Institucional* (Institutional Revolutionary Party), Mexico
U.N.	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Program

UNICEF United Nations Children's Fund
URL Uniform Resource Locator, the address of documents and other resources on the World Wide Web
WTO World Trade Organization, established in 1995, to administer rules of conduct in international trade

Measures

1 hectare = 2.47 acres
1.61 kilometer = 1 mile
2.59 square kilometers = 1 square mile
1 meter = 1.09 yards = 3.3 feet
1 kilogram = 2.2 pounds
2.54 centimeters = 1 inch
28.3 grams = 1 ounce
0.028 cubic meters = 1 cubic foot

Preface to the Fourth Edition

I wrote this text to increase readers' understanding of the economics of the developing world of Asia, Africa, Latin American, and East-Central Europe, where three-fourths of the world's population lives. The book is suitable for students who have taken a course in principles of economics.

The growth in real income per person in the third-world nations of Latin America, Asia, and Africa, about threefold since 1950, is a mixed record. For some economies, the growth warrants optimism, particularly in Taiwan, South Korea, Singapore, Malaysia, Thailand, Indonesia, China, other fast-growing Pacific Rim countries, Brazil, and more recently India. The tragedy, however, is that sub-Saharan Africa, encountering growing misery and degradation from 1965 to 2005, has not shared in these gains. The sub-Sahara is not only vulnerable to external price shocks and debt crises that destabilized the global economy in the late 20th century but also is plagued by increasing food deficits, growing rural poverty, urban congestion, and falling real wages, difficulties that represent an inadequate response to adjustment, reform, and liberalization, often imposed by the International Monetary Fund (IMF) or World Bank as a last resort. The problems of Bangladesh, Nepal, Afghanistan, Myanmar (Burma), Cambodia, and Haiti are as severe as those of Africa.

This edition expands on previous material analyzing China and other countries that were socialist during most of the post–World War II period. The major upheaval in the field since early 1989 has been the collapse of state socialism in East-Central Europe and the former Soviet Union and economists' downward revision of estimates of their average economic welfare. Since the late 1980s and early 1990s, postsocialist European countries, like other low- and middle-income countries, have undertaken structural adjustment and market reforms, generally under IMF or World Bank auspices. Yet a substantial proportion of these liberalizing postsocialist economies have still not attained their pre-1989 peak in economic welfare. This edition reflects this reality by increasing examples from such countries as Russia, Poland, Ukraine, Hungary, Czech Republic, and other transitional economies, and by drawing lessons from their adjustment, stabilization, and liberalization for other middle-income and low-income countries.

Yet I have not allowed the problems of East-Central Europe and the former Soviet Union, important as they are, to overshadow the primary emphasis of the book on Asia, Africa, and Latin America. The major focus is on their real-world

problems – from those of newly industrializing countries, such as Taiwan, South Korea, Singapore, and Malaysia, to those of the slow-growing sub-Sahara – rather than abstract growth models.

I am gratified by the response from reviewers, instructors, students, and practitioners in the United States, Canada, Europe, Japan, Australia, New Zealand, Korea, and the developing world to the emphases in the book's third edition. This revision continues previous themes, such as the origins of modern growth, problems measuring growth, and the origin and resolution of the debt crisis, and integrates social, political, and economic issues and emphasizes poverty, inequality, and unemployment in the discussion of economic policies throughout the book.

This edition takes advantage of the recent explosion of Internet resources in development economics. For each chapter, I provide an Internet assignment that instructors can use for students to analyze data or write reaction papers by accessing Nafziger, Internet Assignments, 2006, at http://www.ksu.edu/economics/nafwayne/. Clicking Nafziger, Links to Economic Development, 2006, at the same Web site lists links to numerous useful sites. Many of my bibliographical references also list the URL. Moreover, a university's library may provide access to online journals, expanding the options for assignments accessible at the students' desktops.

The text incorporates substantial new material to reflect the rapidly changing field of development economics. I have updated tables, figures, and chapters with the most recent data, and I have revised chapter-end questions to discuss and guides to readings. The reader can access Nafziger, Supplement, 2006, at my Web site to find material complementary to the book. Finally, the text, more user-friendly, includes a bibliography and glossary at the end.

The edition's other major changes reflect recent literature or readers' suggestions. In the introduction to Chapter 1, I have added sections on globalization, outsourcing, and information technology and Asia's recent golden age of development, with its expansion of the middle class, to the comparison of living standards between rich and poor countries. Chapter 2, on the meaning and measurement of development, has new material on confidence intervals for gross product PPPs and Amartya Sen's analysis of development as freedom.

Chapter 3's historical perspective includes Jared Diamond's evolutionary biological approach to development and the effect of geography on the diffusion of innovation; sections explaining China's market socialism and the end of Japan's economic miracle; the inadequacy of the United States as a development model; and an analysis of the rapid growth of the Celtic tiger, Ireland. The same chapter assesses Ha-Joon Chang's argument that rich countries used protection and state intervention in their early industrialization but "kicked away the ladder" for poor countries. New material also includes widening gaps or spreads between the West and developing countries and a broadening of the convergence concept to include Stanley Fischer and Surjit Bhalla's argument that rich and poor individuals are converging. The chapter is enriched by much material from Angus Maddison: a summary of economic growth since the ancient period, the transfer in GDP per capita world leadership from one nation to another from 1500 to the present, the cross-national comparisons of economic

growth during periods between 1870 and the present, and the identification of the golden age of capitalist development.

Chapter 4's profile analyzes the high proportion of output and the labor force in services in rich countries, the role of institutions in economic development, and the controversy about social capital and growth. In Chapter 5, on development theories, I add the Murphy–Shleifer–Vishny model to the balanced and unbalanced growth discussion and Michael Kremer's O-ring theory of coordination failure. I also have transferred capital requirements and incremental capital-output ratios to the appendix to Chapter 5.

Chapter 6 expands discussion of weaknesses of poverty and hunger data, points out the multidimensional nature of poverty, provides data for global and regional poverty rates, looks at how poverty and inequality affect war and political violence, and defines the concept of $1/day and $2/day poverty, pointing out that these refer to purchasing power adjusted income in 1985. The chapter also critiques the contrasting views of the World Bank, Institute for International Economics, and Sala-i-Martin on how to measure poverty.

Chapter 7, on rural poverty and agricultural transformation, expands the discussion of how agriculture affects overall economic growth, puts more emphasis on off-farm sources of rural income, examines multinational corporations and contract farming in developing countries, adds to the time-series data on the growth of average food production in rich and poor countries, and provides new data on food deficits and food insecurity in developing countries and the relative importance of fish, meat, and grains in developing countries. The same chapter reworks the section on how poor agricultural policies and institutional failures hamper sub-Saharan African agriculture and compares India and China's growth in average food output. Other new sections include the Hayami–Ruttan induced-innovation model of agricultural development, the benefits and costs of agricultural biotechnology, multinational corporations and contract farming in developing countries, and power sources by developing-country region.

Chapters 8–13 discuss factors of growth. Chapter 8, on population, includes several new tables and figures and adds population growth deceleration since 1960 to the emphasis on rapid population growth from 1950 to the present. Chapter 10, on human capital, expands comparisons of how health affects economic development; updates and expands the section on the economic impact of HIV/AIDs, tuberculosis, and malaria on developing countries; and includes a new section on mortality and disability, including comparative data on disability-adjusted life years. Chapter 11 on capital formation, investment choice, information technology, and technical progress includes material previously included in a separate chapter on sources of capital formation. Furthermore, we have added a substantial section on computers, electronics, and information technology, with a critical analysis of the productivity paradox stating that computers do not show up in measures of total factor productivity. The section's micro- and macroeconomic data give examples of the impact of information technology and growth and compares the lag between computer innovation and growth with those of previous major innovations. Chapter 12 on entrepreneurship

and organization examines the relationship between long-term property rights and entrepreneurial activity. Chapter 13, on natural resources, analyzes the literature on resource curse and includes discussion of an updated Nordhaus–Boyer model and its implications for global climate change.

Chapters 14–17 integrate macroeconomics and the international economics of development. Chapter 14, on monetary, fiscal, and incomes policy has new sections on how international and domestic capital markets affect the financial system and how adverse selection, moral hazard, and external shocks contributed to financial crises such as those in Mexico (1994), Asia (1997–99), Russia (1998), and Argentina (2001–03). Chapter 15, on balance of payments, aid, and foreign investment, has a new section on the perverse capital flow from poor to rich countries, including an explanation of massive capital inflows to the United States.

Chapter 16, on external debt and financial crises, has a new section on spreads and risk premiums and a detailed analysis of financial and currency crises. These crises relate to sections on World Bank–IMF lending and adjustment programs, the fundamentalists and their critics, reasons for the IMF's failure to reduce financial crises, the IMF's sovereign debt restructuring proposal, and new approaches to resolving the debt crises.

Chapter 17, on international trade, has new sections on path dependence and comparative advantage and arguments for rich-country tariffs based on income distribution, third-world child labor, and the environment. The discussion of global production networks examines how low-income countries with reduced protection moved up the value-added ladder to expand their low-technology exports. Other new topics include the importance of trade in services, the debate concerning offshore outsourcing, criticism of current intellectual property rights' rules, the analysis of currency crises, proposals for managed floating exchange rates in countries open to international capital flows, arguments against the proliferation of free trade areas, and the euro versus the U.S. dollar as reserve currencies for developing economies.

Chapter 19, on stabilization, adjustment, reform, and privatization, has expanded the literature on privatization and revised and increased the discussion of adjustment and liberalization in Russia, China, and Poland and their lessons for developing countries.

I am indebted to numerous colleagues and students in the developed and developing world for helping shape my ideas about development economics. I especially benefited from the comments and criticisms of John Adams, Edgar S. Bagley, Maurice Ballabon, Thomas W. Bonsor, Antonio Bos, Martin Bronfenbrenner, Christopher Cramer, Robert L. Curry Jr., Wayne Davis, Lloyd (Jeff) Dumas, David Edmonds, Patrick J. Gormely, Roy Grohs, Margaret Grosh, Ichirou Inukai, Philip G. King, Paul Koch, Bertram Levin, John Loxley, L. Naiken, Elliott Parker, Harvey Paul, James Ragan, David Norman, Alan Richards, Anwar Shaikh, Gordon Smith, Howard Stein, Shanti Tangri, Lloyd B. Thomas, Roger Trenary, Rodney Wilson, and Mahmood Yousefi. Scott Parris, Simina Calin, and others at Cambridge University Press contributed substantially to the book. Fjorentina Angjellari, Gregory Dressman, Jared Dressman, Akram Esanov, Ramesh Mohan, Anton Kashshay, and Boaz Nandwa

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Goals from the U.N. Millenium Summit, 2002, figures and tables from the United Nations Conference for Trade and Development, *World Investment Report 2003 – FDI Policies for Development: National and International Perspectives*, 2003, and *World Investment Report 2002: Transnational Corporations and Export Competitiveness*, 2002; and the United States Bureau of the Census for figures from *International Data Base Population Pyramids, 1950–2050*, 2004.

I have made every effort to trace copyright owners, but in a few cases this was impossible. I apologize to any author or publisher on whose rights I may have unwittingly infringed.

1 Introduction

Nature and Scope of the Text

This book is about the economics of developing Asia, Africa, Latin America, and Central and Eastern Europe, whose peoples include impoverished peasants and slum dwellers, factory workers, small farmers, landlords, businesspeople, managers, technicians, government officials, and political elites. The economics of development also includes lessons from the past economic growth of today's industrialized countries and middle-income economies. It is suitable for students who have taken principles of economics.

The book differs from other development textbooks:

1. Unlike most texts, it discusses why modern economic growth originated in the West; gives reasons for Japanese growth (before its hiatus in the 1990s); and explains different growth rates among developing countries, including the success of the newly industrialized countries – especially Taiwan, South Korea, Singapore, Hong Kong, and Malaysia (despite the Asian crisis of the late 1990s).
2. The book illustrates concepts from all major third-world regions (Latin America, Asia, Africa, and Eastern Europe), with discussion of Asia's recent growth acceleration, Latin America's slowing growth, sub-Saharan Africa's food and economic crisis, and how developing regions have been affected by a globalized economy.
3. I provide a more detailed and balanced discussion of economic adjustment (structural or sectoral adjustment, macroeconomic stabilization, or economic reform) in emerging economies, including former socialist economies such as China, Russia, Ukraine, Poland, the Czech Republic, and Hungary, making the transition to a market economy. The text also analyzes the roles of rich nations, the International Monetary Fund (IMF), and the World Bank in supplying external resources and setting domestic and international economic conditions for adjustment. Moreover, the book examines the lessons learned during the reaction against reforms imposed by the IMF and other external lenders on Africa, Asia, and Latin American in the last 25 years, and on countries such as Russia, Ukraine, Poland, and Hungary since 1990. Although this material is scattered throughout the book, I present a comprehensive treatment of adjustment programs in Chapter 19.
4. The case studies I discuss – Russia–Soviet Union, Japan, South Korea, Taiwan, China, the Philippines, Thailand, Indonesia, Malaysia, Bangladesh, India,

Nigeria, Congo (Kinshasa), South Africa, Argentina, Brazil, and Mexico – are not isolated at the ends of chapters but are integrated into the discussion of major concepts in the chapters.

5. Instead of stressing abstract models of aggregate economic growth, the text emphasizes poverty, inequality, unemployment, and deficiencies in food, clothing, housing, education, and health of people in less-developed countries, including the HIV/AIDs, malaria, and tuberculosis pandemics.
6. Rather than being isolated in a separate chapter, employment and income distribution are discussed along with development throughout the book.
7. Problems of measuring economic growth are stressed along with adjusting income for purchasing power.
8. I examine institutional (see Chapter 4), social, and political factors that accompany economic development throughout the book rather than limiting this discussion to only one or two chapters.
9. Economic performance is explained in the context of both domestic and global economies, and international interdependence is stressed. Three chapters are devoted to the balance of payments, aid, foreign investment, reverse capital flows, technical transfer, financial crises, the financial and currency crises, the external debt crisis, World Bank and IMF policies, international trade, exchange-rate policies, trade in services and agricultural products, and regional economic integration. I discuss a subject little noted by other economists – how U.S., Japanese, European, and other global production networks have increased international competition and reduced production costs and how Asia's increasing share of the world's middle-class population is providing increased competition for the industrialized countries' middle class and college graduates, especially in electronics, software, and services.
10. A section of Chapter 11 on capital formation and technical progress concentrates on information technology, electronics, and (especially mobile) telecommunications, examining the market breakdown by geographical region, returns to investment in information technology, the contribution of information technology to GDP, the rate of price reduction in electronics, computer, and information technology, the adaptation of this technology in less-developed countries (LDCs), and the extent to which LDCs can leapfrog stages to use state-of-the-art electronic and telecommunication technology.
11. The text analyzes views opposed to prevailing Western economic thought. Two of these views are the dependency theory, which explains the underdevelopment of the third world in terms of the economic and political domination of the industrialized world, and neo-Marxism, which sees international class conflict as a struggle by workers and peasants in the developing world against their own political elite, who are in alliance with the elite of the developed world. Only by carefully considering these perspectives can a reader understand third-world economic ideologies and political discontent. Indeed, most neo-Marxists put more emphasis on criticizing the prevailing system, especially capitalism, than on prescribing socialism. I try to present a balanced view of neo-Marxism

and the dependence theory – neither attributing these views to a "devil theory of history" nor using them to explain the distributional effects of international trade as unequivocally unfavorable to developing countries.

12. The discussion on development policy making and planning is integrated with other chapters, emphasizing that antipoverty programs, family planning, agricultural research and extension, employment policies, education, local technology, savings, investment project analysis, monetary and fiscal policies, entrepreneurial development programs, and international trade and capital flows are included in economic planning. I analyze the role of the state and the market in policy making, with a section on the *dirigiste* debate (the role of government) in Chapter 18 and on the liberalizing process in adjustment programs in Chapter 19.

With the explosion of internet resources, I have expanded references to URLs and included them in the bibliography at the back of the book; I also have provided Internet assignments for each chapter in a Web site available for the text, http://www.ksu.edu/economics/nafwayne/, which also provides a student *Study Guide* by Ramesh Mohan; a *Supplement* to the text; and a list of links to useful Internet sites (see the Guide to Readings at the end of this chapter).

Organization of the Text

The book is organized into six parts. The first five chapters focus on principles and concepts of economic development. Chapters 6–7 examine income distribution, including a discussion of the distribution between urban and rural areas and the process of agricultural transformation. Chapters 8–13 analyze the role of population, production factors, and technology in economic development, with special emphasis in Chapter 13 on the environment and natural resources. Chapters 14–17 discuss the macroeconomics and international economics of development. Chapter 18 looks at planning for economic development, and Chapter 19 analyzes stabilization, adjustment, reform, and privatization.

Sections presenting terms to review, questions to discuss, and guides to readings can be found at the end of each chapter. Highlighted terms are defined or identified in the glossary near the end of the book. References in the chapters and guides to reading are cited in full in the bibliography, including Internet URLs, when available.

How the Other Two-Thirds Live

INEQUALITY BETWEEN THE WORLD'S RICH AND POOR

Development economics focuses primarily on the poorest two-thirds of the world's population. These poor are the vast majority, but not all, of the population of developing countries, which comprise 82 percent of the world's population. Many of them are inadequately fed and housed, in poor health, and illiterate. Calculations based on national accounts and income distribution indicate that about 700–1000 million (10–15 percent) of the world's 6.5 billion people (5.3 billion in developing countries)

are poor or living on no more than $1 a day.[1] Most Americans, Canadians, and Britons have never seen poverty like that, the overwhelming majority of which is in sub-Saharan Africa, South Asia, and East Asia.

If you have an average income in the United States and Canada, you are among the richest 5 percent of the world's population. The economic concerns of this 5 percent are in stark contrast to those of the majority of people on this planet. The majority see the American with average income as incredibly rich, perhaps as an average American views the Mellons or Rockefellers. By and large, a person's material well-being (whether rich, poor, or in between) is tied to the long-run growth record of his or her country (Dollar and Kraay 2002:195–225), a focus of this book.

Income inequality is even greater for the world as a whole than for countries having high income concentration, such as South Africa and Brazil. To see these contrasts more clearly, let us briefly compare living conditions in North America to those in India, a low-income country, one that is not as poor as the poorest region of the world, sub-Saharan Africa.

A NORTH AMERICAN FAMILY

An average intact family in the United States and Canada, the Smiths, a family of four, has an annual income of $US55,000 to $US60,000. They live in a comfortable apartment or suburban home with three bedrooms, a living room, kitchen, and numerous electrical appliances and consumer goods. Their three meals a day include coffee from Brazil, tinned fruit from the Philippines, and bananas from Ecuador.

The Smith children are in good health and have an average life expectancy of 77 years. Both parents received a secondary education, and the children can be expected to finish high school and possibly go to a university. Modern machinery and technology, even where these require physical work, will probably relieve their jobs. But although the Smiths seem to have a reasonably good life, they may experience stress, frustration, boredom, insecurity, and a lack of meaning and control over their lives. Their air may be dirty, their water polluted, and their roads congested. Some of these problems may even result from economic progress. Nevertheless, millions of less fortunate people throughout the world would be happy with even a portion of the Smiths' material affluence.

INDIAN FARM FAMILIES

The family of Balayya, a farm laborer in India, has a life far different from the Smiths'. Although work, family structure, food, housing, clothing, and recreational patterns vary widely in the developing world, Balayya's family illustrates the low income of the majority of the world's population in Asia, Africa, and Latin America relative to North America. Balayya Lakshman, his wife, Kamani, and their four children, ranging in age from 3 to 12 years, have a combined annual income of $US900 to

[1] $1/day in 1985 prices, $1.50/day in 1993 prices (Bhalla 2002:140), and about $2/day in 2005 prices. See Chapter 6.

$US1,200[2] (but several times that in purchasing power), most of which consists of goods produced rather than money earned. Under a complex division of labor, the family receives consumption shares from the patron (or landlord) in return for agricultural work – plowing, transplanting, threshing, stacking, and so on.

The rice-based daily meal, the one-room mud house thatched with palm leaves, and the crudely stitched clothing are produced locally. The house has no electricity, clean water, or latrine. Kamani fetches the day's water supply from the village well, a kilometer (three-fifths of a mile) away. Although there is much illness, the nearest doctor, nurse, or midwife is 50 kilometers away, serving affluent city dwellers. Average life expectancy is 63 years. Few villagers can afford the bus that twice daily connects a neighboring village to the city, which is 40 kilometers away.[3] The family's world is circumscribed by the distance a person can walk in a day.

Neither Balayya nor Kamani can read or write. One of their children attended school regularly for three years but dropped out before completing primary school. The child will probably not return to school.

Despite inadequate food, Balayya and the two sons over seven years old toil hard under the blazing sun, aided by only a few simple tools. During the peak season of planting, transplanting, and harvesting, the work is from sunrise to sunset. Kamani, with help from a six-year-old daughter, spends most of her long working day in the courtyard near the house. Games, visiting, gossip, storytelling, music, dancing, plays, worship, religious fairs and festivals, weddings, and funerals provide respite from the daily struggle for survival.

Balayya has no savings. Like his father before him, he will be perpetually in debt to the landlord for expenditures, not only for occasional emergencies but also for the proper marriages of daughters in the family.

The common stereotype is that peasant, agricultural societies have populations with roughly uniform poverty, a generally false view. Although many third-world villagers are poor, a number are better off. A tiny middle and upper class even exists. Accordingly, Sridhar Ramana, Balayya's landlord, together with his extended family – his wife, two unmarried children, two married sons, their wives, and their children – is relatively prosperous. The family, whose annual income is $US6,000, lives in a five- to six-room brick house with a tile roof and a large courtyard. Their two daily meals consist of a variety of meats as well as seasonal fruits and vegetables.[4] Machine-stitched clothes are acquired from the local tailor, from the village bazaar (open-air marketplace), or on monthly bus trips to the city. The house has electric lights and fans. Servants shop for food, cook, clean, carry water, and tend the lawn and garden. Sridhar and his sons and grandchildren have completed primary school. Some of the grandsons, and occasionally a granddaughter, will complete secondary school, or even graduate from the university.

[2] Tens of thousands of rupees, the currency India uses.

[3] Although some villagers can afford to buy a bicycle, few can purchase a motor scooter, the cost of which is somewhat less than India's average annual income.

[4] Some Indian castes prohibit eating meat for religious reasons.

CONGESTION, POVERTY, AND AFFLUENCE IN INDIA'S CITIES

In the large Indian cities, there are few proper footpaths for pedestrians or separation of fast-moving vehicles from slower ones; the flow of traffic consists of the juxtaposition of buses, automobiles, taxis, trucks, jeeps, motorcycles, motor scooters, powered cycles, bicycles, human-drawn and motorized rickshaws, oxcarts, handcarts, cattle, dogs, and pedestrians walking or carrying head loads. Congestion, squalor, destitution, and insecurity characterize the lives of the unemployed, underemployed, and marginally employed in cities such as Kolkata (Calcutta), Mumbai (Bombay), and Delhi – more so than for the rural, landless worker. In the central city, people literally live in the street, where they eat, wash, defecate, and sleep on or near the pavement (see Jagannathan and Halder 1988:1175–78). During the monsoon season, they huddle under the overhanging roofs of nearby commercial establishments. Others with menial jobs live in crowded, blighted huts and tenement houses that make up urban shantytowns. In contrast, the family whose major income earner is steadily employed as an assembly line worker in a large company or as a government clerk may live in a small house or apartment. Upper-income professionals, civil servants, and businesspeople usually live in large houses of five to six rooms. Although they have fewer electrical appliances than the Smiths do, they achieve some of the same material comfort by hiring servants.

Social institutions and lifestyles vary greatly among third-world countries. Nevertheless, most low-income countries have income inequality and poverty rates at least as high as India's. Even the poorest Americans and Canadians are better off than most of the people in India and other low-income countries.

Globalization, Outsourcing, and Information Technology

Yet both Indians and North Americans are living in worlds affected by domestic economic change and greater integration into the global economy. In the United States, household income distribution is shaped more like an hourglass, with a slender middle, so that families such as the Smiths are falling from the middle class from job loss or rising to higher incomes. In India, the gains from economic growth and reform – although these gains bypass some – mean rising commercial farm income for the families of Sridhar and Balayya and increased business and employment opportunities in the cities. Furthermore, as Anthony P. D'Costa (2003:212) notes, India's incomes are uneven so that "You have fiber optic lines running parallel with bullock carts."

With globalization, the worlds of India and the United States increasingly are intersecting, much beyond the expanding Indian-American representation in electronics, academics, business, medicine, and journalism in the United States. Some U.S. corporations (or state or local governmental units) outsource service jobs to India, where an entry salary for a university graduate is $US300–500 monthly, a good salary and career opportunity by local standards. The corporation may have an Indian subsidiary or may subcontract work to an Indian firm. In India, two million

English-speaking college students graduate yearly, and most work for one-tenth to one-fifteenth the salary that a U.S. worker of comparable skill receives.

Low-cost high-quality telecommunications means that U.S. companies can open a call center almost as easily in Kolkata, Delhi, Dakha, Johannesburg, and Manila (Hookway 2003:A1) as in Omaha, Austin, or Tallahassee. Indian employees spend several weeks of training to Americanize their accents and take a crash course in Americana – "holidays, regional speech patterns, weather patterns, and the meaning of terms such as 'frat party'" – to disguise the callers' location (Bengali 2003:A1).

As night settles in Mumbai, Megha Joshi enters an office with a group of young graduates, sitting in a row of sound-muffling cubicles, talking into their designer headsets. She phones someone in the United States, 12 time zones away. "Good morning, this is Meg," she says, Anglicizing her name. Working from a script, she offers the respondent a major credit card. Other Indian call center workers handle routine work, such as helping a customer make a standard order, check a bank or food stamp balance, pay a bill, or activate a credit card; processing insurance claims; recovering bad debts; or providing other customer services; routing more complicated questions back to the call center in the United States. Other outsourcing spans the technology spectrum, including software code writing, chip design, product development, accounting, Web site designing, animation art, stock market research, radiology, airline reservations, tax preparation and advice, transcribing, consulting, prayers for the deceased, and other support services, especially in south India's Silicon Valley, Bangalore, and other high-technology cities (ibid.; *Kansas City Star* 2004; World Bank, *Development News*, December 26, 2002; *Guardian* 2001; Landler 2001).[5] Yet with India's sustained economic growth and increasingly attractive job options for college graduates, call centers will find it more difficult to hire university graduates cheaply.

In software and related services, India moved up the information and communications technology (ICT) value chain from Western corporate outsourcing and small IT enterprises to a major exporter. Chapter 15 discusses J. T. Banerjee (not his real name), Kolkata director of TRP Software, Limited, a data systems and software company that designed information management systems for firms and governmental units. TRP took advantage of India's low-salaried university graduates to put together competitive bids overseas. However, TRP's export growth did not take off until after 1991, when India's liberalization of input purchases and foreign exchange allowed Mr. Banerjee to travel overseas freely and purchase inputs in a timely way.

Domestic firms such as TRP, joined by the emerging technically talented Indian diaspora, provided the skills for India to play a major role in the global information technology industry. In the late 1990s, Chinese and Indian immigrants ran one-third of the high-technology firms in the Silicon Valley, California. Indian- and

[5] The marketing consultant Rama Bijapurkar labels call center workers, some with changing attitudes toward family, romance, marriage, and material possessions, as "liberalization children." The post-1991 liberalization, which stimulated the demand for cellphones, motorcycles, café dining, and Western-style consumer imports demand, helped create a young affluent class that included information technology employees (Slater 2004:A1).

Indian-American-owned companies in the United States, frequently spinoffs from large American companies, have become suppliers to former U.S. employers or other contacts, using Indian employees. Moreover, Indian software firms raised capital in the United States to acquire U.S. companies, set up offices to interact with clients, and undertake research and innovation. India undertook innovation and skill deepening in "solid systems integration skills, imaging and scientific programming, such as GIS and CAD/CAM, and real time programming, such as telecom, multimedia, and e-commerce." India's software sector represents "the first time India has produced a skill-based, high value export-oriented sector. The sector has also attracted considerable foreign direct investment by multinational corporations and brought in some expatriate professionals" (D'Costa 2002, with quotations from pp. 10, 4).

India's ICT production grew from $10 million in 1986–87 to $1.7 billion in 1994–95 to $16.5 billion ($9.5 billion exports) in 2002–03, comprising 3 percent of GDP and 18 percent of exports. In 2002, Forbes ranked India's software services magnate, Wipro's Azim Premji, 41st in the world in net worth, with $6.4 billion, and one of the other top 500 billionaires was from India's software industry (NASSCOM 2003a; NASSCOM 2003b; NASSCOM 2003c; D'Costa 2002:1, 5). "Mumbai, . . . a highly developed financial and commercial center [has] large software firms, such as TCS, Tata-Infotech and Citibank."[6] Still, India's global ICT share in 2001 was just over 1 percent (D'Costa 2002:8).

India's and Asia's Golden Age of Development

India's recent growth is a part of a golden age of development for Asia (Bhalla 2002:195), during years of globalization (expansion of trade and capital movements), 1980–2000. From 1980 to 2000, the absolute incomes of the industrialized countries' middle class "slowed down to a crawl – only 1.2 percent a year, a third of that experienced by their parents – [while] that of Asian elites slowed down only marginally – to 2.9 percent" (ibid., p. 195). The impact of this has been most substantial among the world's middle class (income range of $US10–$US40 a day or annual purchasing-power equivalent income, at 1993 prices, between $US3,650 and $US14,600). The relative income of Asian elites (top 10 percent of income earners) increased from 43 percent in 1980 to 60 percent in 2000 of the middle 50 percent of industrialized countries' income earners, a group with comparable education and skills.

ASIA'S COMPETITION AND AMERICAN PROTESTS

Globalized firms, in their search for lower costs, are hiring Indians (and Chinese, Bangladeshis, and Malaysians) to do their work in place of middle-class Americans, Britons, Swedes, or Dutch; and in some instances, as noted earlier, Asians are subsequently establishing enterprises that compete globally. Figure 1-1 shows U.S.

[6] Tata, named for Jamshedjee Tata, who established India's first steel mill in 1911, is India's largest industrial house.

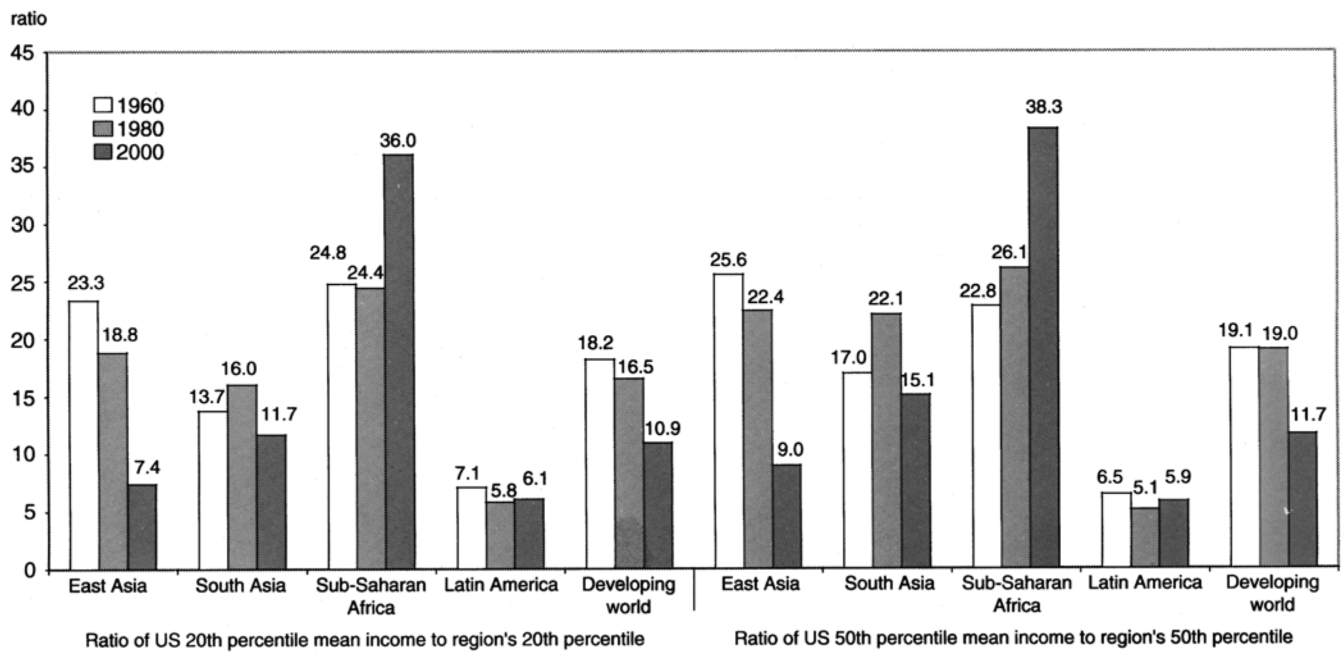


FIGURE 1-1. U.S. Income Relative to That of Developing Regions, 1960–2000. *Sources:* Bhalla 2002:192; WIDER 2002; World Bank 2002h. CD-ROM.

income, 1960–2000, falling relative to East and South Asia, virtually unchanged relative to Latin America, and increasing substantially relative to Africa.

In the 1960s and 1970s, those representing large U.S. corporate interests, such as Nelson Rockefeller, a liberal Republican, supported populist programs of health, education, and welfare. In subsequent decades, as multinational corporations have become more footloose with greater global opportunities for outsourcing, these interests are more likely to oppose large government spending on educational and welfare programs for the middle and working classes.

Indian and Asian elites anticipate doubling real incomes in a generation. By contrast, the middle classes of the United States and other industrialized countries are facing a collapse in growth (doubling real incomes not in one but in three generations), more competition from foreign skills, and lowered expectations for a better life. Is it surprising that many U.S. and Western middle classes are protesting against globalization?

Latin America's 2000 income relative to the United States is only 70 percent of its preglobalization value in 1960 (Bhalla 2002:192–96). **Porto Alegre**, Brazil, in Latin America (Mumbai, India in 2004) hosts an annual anti-globalization meeting, the **World Social Forum**, a rival to the annual **World Economic Forum** for the world's economic elites, usually held in **Davos**, Switzerland.

Although Asians protest the **policy cartel** of the IMF, World Bank, and U.S. government, they rarely protest against globalization, from which they benefit. Africa, by contrast, has few protests against expansion of global trade, capital movements, and outsourcing, from which it receives little benefit. Africans are more likely to complain about their lack of integration into the international economy.

Critical Questions in Development Economics

An introduction to development economics should help you gain a better understanding of a number of critical questions relating to the economics of the developing world. The following list is a sample of 19 such questions. Each is numbered to correspond to the chapter in which it is primarily discussed.

1. How do the poorest two-thirds of the world live?
2. What is the meaning of economic development and economic growth?
3. What is the history of economic development? How have developing countries performed economically in the last half century?
4. What are the major characteristics and institutions of developing countries?
5. What are the major theories of economic development?
6. Has economic growth in the third world improved the living conditions of its poor?
7. How can poverty be reduced in the rural areas of low-income countries?
8. What effect does population growth have on economic development?
9. Why is there so much unemployment in developing countries?

10. What factors affect labor skills in the third world?
11. What criteria should be used to allocate capital between alternative projects? How important are information and other technology in economic development?
12. What factors contribute to successful entrepreneurial activity in developing countries?
13. Are humankind's economic policies sustainable over the next few centuries?
14. What monetary and fiscal policies should a country use to achieve economic development with price stability?
15. How can LDCs export more and import less?
16. What policies can ease the international debt and financial crises in developing countries?
17. What trade strategies should developing countries use?
18. Should developing countries rely on market decisions or state planning in allocating resources?
19. Do price and exchange-rate decontrol, financial liberalization, deregulation, and privatization improve LDC performance?

Limitations of Standard Economic Approaches

These questions are only some of those to be explored. The answers may be more complex than you think. When analyzing the developing countries, rigid adherence to standard economic approaches, concepts, or paradigms creates problems. Unlike developed countries, developing economies frequently do *not* have a mobile and highly educated labor force, commercial farmers, large numbers of responsive entrepreneurs, a favorable climate for enterprise, a high level of technical knowledge, local ownership of industry, heavy reliance on direct taxes for revenue, a large number of export commodities, an average income substantially above subsistence, a well-developed capital market, or a high savings rate. The problems of developing economies are often unique. You may have to unlearn much when studying their economies. As a leading development economist, Dudley Seers (1963:77), suggests: "The abler the student has been in absorbing the current doctrine, the more difficult the process of adaptation" to a study of the developing world. Although this is probably overstated, you must set aside your preconceptions and keep your mind open to other approaches and concepts in analyzing a world different, in many ways, from the United States, Canada, and Western Europe.[7]

A related warning is to be skeptical of development statistics. Examining and making inferences from development statistics is serious business. Surjit Bhalla (2002)

[7] Seers (1963:77–98) contends that calling a book that deals primarily with the U.S. economy *Principles of Economics* is like calling a book dealing with horses *Animals*. Indeed, for Seers, development economics, which analyzes the 75–80 percent of the world in developing countries plus comparisons with the growth record of industrialized economies, is much closer to general principles of economics.

shows that, contrary to received wisdom in development economics, global inequality and poverty rates are not increasing but declining. He says (ibid., p. 163) that "The disillusionment with the processes of [recent] growth was in large part an unintended outcome of a revolution, a changed paradigm, in the measurement of poverty, a paradigm that carried no less a signature than that of the World Bank. A large part of this disillusionment is an illusion. . . . [An] unwarranted mix [of survey data on poverty with national accounts data on income] is *the* source of popular disillusionment. The mixed-up observation [is] due to the mix-up of using Peter's poverty (from survey data) and Paul's income (from national accounts data)." This issue, discussed in Chapter 6, is only one example of economists' flaws in interpreting developing countries' data.

TERMS TO REVIEW

- Davos
- International Monetary Fund
- less developed countries (LDCs)
- policy cartel
- Porto Alegre
- World Bank
- World Economic Forum
- World Social Forum

QUESTIONS TO DISCUSS

1. What do you hope to gain from a course in economic development (other than a good grade)?
2. Why is studying economics so central to understanding the problems of developing countries?
3. What impact might rapid economic development have on the lifestyle of Balayya's family? Kolkata's marginally employed? Software workers and capitalists?
4. What effect has globalization and outsourcing had on income and employment in North America? In India and China?
5. Would you expect the development goal for the Indian poor to be a lifestyle like that of the Smiths?
6. Why are economic theories about developing countries different from those based on Western experience? What assumptions are involved in each case?
7. Give an example of how rigid adherence to Western economic theory or uncritical examination of development statistics may hinder understanding the developing world.

GUIDE TO READINGS

The Guide to Chapter 2 lists major statistical sources on LDCs and industrialized countries, including, in some instances, Internet Web sites. Bhalla (2002) critiques these statistical sources.

Arndt (1987) traces the history of thought about economic development as a policy objective. Meier and Seers, *Pioneers in Development* (1984), use biography to examine the history of the field. Meier (2005) examines the evolution of development economics during the past 50 years.

Rodrik, "Growth strategies" (2004), http://ksghome.harvard.edu/~.drodrik.academic.ksg/papers.html, is a paper in Aghion and Durlauf's *Handbook of Economic Growth*. In addition to Rodrik's essay, preliminary contents of this handbook include the neoclassical and Schumpeterian growth models; the transition from stagnation to growth; poverty traps; econometrics of economic growth; cross-country growth patterns; the world income distribution; scale effects; measuring quality change and externalities; growth accounting; historical perspectives on growth, technology, and institutions; general purpose technologies; trade specialization and growth; the effects of inequality on growth; inequality and development; political regimes, institutions, property rights, and growth; financial markets and growth, urban development, and human capital; demography and growth; policy and growth; the effects of technical change on wage inequality; growth and the size of nations; growth and the environment; social consequences of growth; social capital; and two essays on reflections on growth theory (see http://www.elsevier.com/inca/publications/store/6/2/2/1/3/1/622131.pub.htt).

Other development surveys include Eatwell, Milgate, and Newman (1989), Stern (1989), and, with bibliographies, Chenery and Srinivasan (1988, 1989).

Seers (1963) is the focus of discussion by Martin and Knapp (1967), the proceedings of a conference on teaching and learning development economics. Seers (1969: 1–16) examines "The Meaning of Development," reprinted in Lehmann (1979), with critical essays on development theory by Seers, Nafziger, Cruise O'Brien, and Bernstein. Lal's *The Poverty of "Development Economics"* (1985) criticizes Seers's emphasis on government involvement in LDCs (see Chapter 18).

The February 1986 issue of *World Development* 14 is devoted to a review of the methodology of development economics. Streeten (1985) examines development theories. Nobel laureate Gunnar Myrdal (1970:3–29) discusses values and biases in development economics.

Jagannathan and Halder (1988:1175–78) is excellent on Kolkata pavement dwellers.

On my Web site, http://www.ksu.edu/economics/nafwayne/, clicking Links to *Economic Development* will take you to a list of development journals, as well as to links to journals on economic development and developing countries; online journals and databases; general resources in economic development; economics departments, institutes, and research centers in the world in economic development; collections, publications, and institutions in economic development; international agencies; development economics abstracts; Japan, Eastern Europe, and the former Soviet Union, searching on Lexis-Nexis; resources on natural resources and the environment; news on developing countries; and other economic sites.

Students have access to a wealth of material on the Internet. An Internet assignment for each chapter to accompany this text can be found at http://www.

ksu.edu/economics/nafwayne, by clicking *Internet Assignments* for Nafziger, *Economic Development*.

Texts no longer need maps and country information on developing countries, as U.S. government URLs provide this information. My Web site provides links to background notes at http://www.state.gov/r/pa/ei/bgn/; and country listings, with maps and information about the economy and government, at http://www.odci.gov/ (click on "the World Factbook").

2 The Meaning and Measurement of Economic Development

Scope of the Chapter

This chapter discusses the meaning, calculation, and basic indicators of economic growth and development; the classification of rich and poor countries; the price-index problem; the distortion in comparing income per head between rich and poor countries; adjustments to income figures for purchasing power; alternative measures and concepts of the level of economic development besides income per head; the problems of alternative measures; and the costs and benefits of economic development.

Growth and Development

A major goal of poor countries is economic development or economic growth. The two terms are not identical. Growth may be necessary but not sufficient for development. **Economic growth** refers to increases in a country's production or income per capita (Box 2-1). Production is usually measured by **gross national product** (GNP) or **gross national income** (GNI), used interchangeably, an economy's total output of goods and services. **Economic development** refers to economic growth accompanied by changes in output distribution and economic structure. These changes may include an improvement in the material well-being of the poorer half of the population; a decline in agriculture's share of GNP and a corresponding increase in the GNP share of industry and services; an increase in the education and skills of the labor force; and substantial technical advances originating within the country. As with children, growth involves a stress on quantitative measures (height or GNP), whereas development draws attention to changes in capacities (such as physical coordination and learning ability, or the economy's ability to adapt to shifts in tastes and technology).

The pendulum has swung between growth and development.[1] A major shift came near the end of the UN's first development decade (1960–70), which had stressed economic growth in poor countries. Because the benefits of growth did not often spread to the poorer half of the population, disillusionment with the decade's progress

[1] Immediately after World War II, scholars and third-world governments were concerned with wider objectives than simply growth. However. the Nobel laureate W. Arthur Lewis (1955:9) set the tone for the late 1950s and 1960s when he noted that "our subject matter is growth, and not distribution."

BOX 2-1. COMPUTING GROWTH RATES

Assume that in 2003, GNI for India is Rs. (rupees) 25,000 billion and its population 1067 million, so that **GNI per capita** is Rs. 23,430. The GNI in 2004, Rs. 31,533 billion, must be divided by the **GNI price deflator**, 110 (corresponding to an annual inflation rate of 10 percent) to give a GNI of Rs. 26,866 billion at constant (2003) prices. This figure, divided by the population in 2004, 1085.5 million, nets a GNI per capita of Rs. 24,750. **Real economic growth** (growth in GNI per capita) from 2003 to 2004 is (if expressed in 2003 constant prices)

$$(24{,}750 - 23{,}430/23{,}430) \times 100 = 5.6 \text{ percent}$$

This growth rate is used by such organizations as the World Bank for average annual growth rate, 2003–04. At a 2004 exchange rate of Rs. 50 = $1, India's GNI per capita of Rs. 29,049 is US$580 (at 2004 prices), used by the World Bank as GNI per capita. We need to adjust nominal GNI per capita by using the PPP exchange rate, that rate at which the goods and services comprising the GNI cost the same in both India and the United States. Using P = 6.13, the price level of GNI or purchasing-power adjusted GNI, gives PPP$3,555 per capita, a more accurate indication of the average Indian's purchasing power expressed in U.S. dollar terms.

was widespread, even though economic growth exceeded the UN target. In 1969, Dudley Seers signaled this shift by asking the following questions about a country's development:

> What has been happening to poverty? What has been happening to unemployment? What has been happening to inequality? If all three of these have become less severe, then beyond doubt this has been a period of development for the country concerned. If one or two of these central problems have been growing worse, especially if all three have, it would be strange to call the result "development," even if per capita income has soared. (Seers 1969:3–4)

At the U.N. Millennium Summit in September 2000, world leaders adopted the Millennium Development Goals (MDGs), setting "targets for reducing poverty, hunger, disease, illiteracy, environmental degradation, and discrimination against women" (U.N. Development Program 2000). The project is directed by Columbia University's Jeffrey Sachs, with advice from senior representatives from U.N. agencies and an International Advisory Panel, with independent experts in relevant fields, supported by the research of thematically-orientated task forces.

The MDGs, using 1990 as a benchmark, set targets for 2015. The targets include

1. reducing the people suffering from hunger and living on less than a dollar a day from one of six billion (17 percent) to half that proportion;[2]

[2] According to the U.N. Development Program (2003:2–3) and the World Bank (2003h:58–60), the $1/day poverty rate for 2000 was 17 percent. Two economists contend that the World Bank's approach is flawed methodologically, thus overstating poverty. Surjit Bhalla's (2002:150) estimates poverty at 13 percent. If we use Xavier Sala-i-Martin's (2002:34–42) estimate of 7 percent, the world already reached the MDG target in the late 1990s (Chapter 6).

2. ensuring that all boys and girls complete primary school (at present, 113 million children do not attend school);
3. promoting gender equality and empowering women by eliminating gender disparities in primary and secondary education by 2005, and at all levels by 2015 (at present, two-thirds of illiterates are women);
4. reducing by two-thirds mortality among children under five years (presently 11 million children die before their fifth birthday, mainly from preventable illnesses);
5. reducing the percentage of women dying in childbirth by three-fourths (now one in 48 die in childbirth, despite the fact that virtually all countries have safe programs for mothers);
6. halting and reversing the spread of HIV/AIDS, malaria, tuberculosis, and other diseases (at present, 40 million people live with HIV, including five million newly infected in 2001, despite the fact that Brazil, Senegal, Thailand, and Uganda show that the spread of HIV can be stemmed);
7. ensuring environmental sustainability, by reversing the loss of environmental resources, reducing by half the proportion of people without access to safe drinking water by 2015, and achieving significant improvement in the lives of at least 100 million slum dwellers (now "more than one billion people lack access to safe drinking water and more than two billion lack sanitation"); and
8. developing a global partnership for development, including an open trading and financial system, a commitment to good governance, reducing the debt burden of developing countries, reducing the poverty of least developed countries, providing productive employment for youth, providing access to affordable essential drugs in developing countries, and making available the benefits of new technologies, especially in telecommunications (U.N. Development Program 2002b).

During the first decade of the 21st century, world leaders discussed how to finance projects embodying these goals (a U.N. conference in Monterrey, Mexico, March 2002), interim progress reports, and final recommendations.

The United Nations points out development goals achieved in the past: eradicating smallpox (1977), reducing diarrhoeal deaths by half (during the 1990s), and cutting infant mortality rates (the annual number of deaths of infants under one year of age per 1,000 live births) to less than 120 (in all but 12 LDCs by 2000) (U.N. Development Program 2003:31). Thus, although most MDG goals appear daunting, we can expect some progress.

Timothy Besley and Robin Burgess (2003:3–22) estimate that in LDCs, the elasticity of poverty with respect to income per capita (percentage change in poverty/percentage change in income per capita) is −0.73, meaning that a doubling in average income will reduce poverty rates by 73 percent. The annual growth rate in per capita income needed to halve world poverty by 2015 is 3.9 percent. If you assume that world regions continue their 1960–90 growth, only the growths of East Asia and the Middle East will exceed the rates needed to halve regional poverty by 2015.

However, Africa's prospect is not as bright as that of the remaining LDCs. David Sahn and David Stifel (2003:23–52) use African demographic and health surveys to examine likely progress in achieving MDG goals. African countries are not on target to achieve any of the first six goals tested (numbers 5 and 6 include proxies), with rural areas, where most African reside, faring worse than cities. Still, the authors find increases in enrollment rates, declines in infant and child mortality and maternal death rates, and (although there is no MDG goal) improved living standards in the 1990s, the baseline for projecting linear and log-linear target paths.

The international community has especially focused upon Africa. The Economic Commission for Africa (1985:3) described Africa's economic situation in 1984 as the worst since the Great Depression, and Africa as "the very sick child of the international economy." ECA's 1983 25th anniversary projection of previous trends to 2008 envisioned the following nightmare of explosive population growth pressing on physical resources and social services:

> The socio-economic conditions would be characterized by a degradation of the very essence of human dignity. The rural population, which would have to survive on intolerable toil, will face an almost disastrous situation of land scarcity whereby whole families would have to subsist on a mere hectare of land. Poverty would reach unimaginable dimensions, since rural incomes would become almost negligible relative to the cost of physical goods and services.
>
> The conditions in the urban centers would also worsen with more shanty towns, more congested roads, more beggars and more delinquents. The level of the unemployed searching desperately for the means to survive would imply increased crime rates and misery. But, alongside the misery, there would continue to be those very few who, unashamedly, would demonstrate an even higher degree of conspicuous consumption. These very few would continue to demand that the national department stores be filled with imports of luxury goods even if spare parts for essential production units cannot be procured for lack of foreign exchange. (Economic Commission for Africa (ECA) 1983:93–94)

Unfortunately, the projection of the ECA is proving correct. Africa's GDP per capita was lower in the 1990s than it was at the end of the 1960s (World Bank 2000a:1). When expressed in purchasing-power parity dollars (discussed later), Africa's average GDP is the lowest in the world, even lower than South Asia's (India, Pakistan, Bangladesh, and Sri Lanka). Moreover, life expectancy in sub-Saharan Africa, reversing the global trend, has declined to the level of 1975, 46 years (inside front cover table), primarily because of the high adult prevalence of HIV/AIDS.

Africa's political milieu, authoritarian and predatory rule and widespread civil wars, militate against economic growth. Evidence from Africa reinforces cross-national findings, a refutation of Singapore's former prime minister Lee Kuan Yew's thesis (Sen 1999:15), that democratization is directly related to the level and rate of economic growth. In 1988, only 5 (Botswana, Gambia, Mauritius, Senegal, Zimbabwe) of 47 sub-Saharan countries were multiparty democracies (Bratton and van de Walle 1997; Ndulu and O'Connell 1999:51). By 2004, the number of democracies had not increased much. Indeed, a majority of the democratically elected regimes

in Africa contrive to hold elections to satisfy international norms of "presentability," and ignore political liberties, the rule of law, and separation of power (Nafziger and Auvinen 2003:114–31).

Claude Ake (1996:18, 42) writes: "With independence African leaders were in no position to pursue development; they were too engrossed in the struggle for survival. . . . [Indeed] instead of being a public force, the state in Africa tends to be privatized, that is, appropriated to the service of private interests by the dominant faction of the elite." Political elites extract immediate rents and transfers rather than providing incentives for economic growth. Clientelism or patrimonialism, the dominant pattern in Africa, is a personalized relationship between patrons and clients, commanding unequal wealth, status, or influence, based on conditional loyalties and involving mutual benefits. In Nigeria's second republic (1979–83), Richard Joseph (1987:8) labeled this phenomenon *prebendalism*, referring to "patterns of political behaviour which rest on the justifying principle that such offices should be competed for and then utilized for the personal benefit of officeholders as well as their reference or support group." Prebendalism connotes an intense struggle among communities for control of the state. Corruption is endemic to political life at all levels in Nigeria and many LDCs. Political leaders use funds at the disposal of the state for systematic corruption, from petty survival venality at the lower echelons of government to kleptocracy at the top.

Two-way causation links the increase in civil wars in Africa to its dismal growth record (Nafziger, Stewart, and Väyrynen 2000; Nafziger and Auvinen 2003:41–42; Collier 2000) (negative per-capita growth, 1974–90, and barely positive in the 1990s) (World Bank 1996a:77; World Bank 1996f:18). Indeed, Stewart, Huang, and Wang (2000:7) indicate that Africa had by far the greatest number of deaths (direct and indirect) from wars, 1960 to 1995, as a proportion of the 1995 population: 1.5 percent, compared to 0.5 percent in the Middle East, 0.3 percent in Asia, and 0.1 percent in Latin America.

Nigeria is a clear example of ECA's foreboding. By the late 1970s, Nigeria, fueled by oil wealth, had surpassed South Africa as Africa's nominal GDP leader, and was classified as a middle income country in 1978–80 (World Bank 1980i:110–11; World Bank 1982i:110–11, 122–23). The contrast between the 1960s to 1970s and the first decade of the 21st century is remarkable. To be sure, visitors in the central cities notice that the urban elite (perhaps 10 percent of the population) is prosperous, with automobiles, cell phones, and refrigerators. Moreover, some villages have electricity (though erratic) and piped water, virtually unavailable in 1965.

But these pockets of prosperity hide Nigeria's massive income disparities. The World Bank (2003i:236–37) ranks Nigeria as having the 15th highest Gini index of income inequality in the world (113 countries ranked), with the highest 10 percent of income earners enjoying 40.5 percent of income, whereas the lowest 10 percent claims only 1.6 percent. Also 91 percent of the population, the highest among 90 countries listed, lives below the international poverty line of $2 a day (in 1993 prices).

From 1965 to 2004, Nigeria's average material well-being fell. This decline included that of average nutritional levels (the proportion of the population

undernourished rose substantially), average consumer spending, access to health care, and infrastructure (transport and communications degraded from inadequate maintenance). The shares of Nigeria's shrinking middle class have plummeted. Many middle-level professionals, teachers, and civil servants were marginalized in 2004; in 1965, they had perquisites of automobile loans and housing.

Alienation in 2004 may even be more widespread than in 1965, just before the civil war. The impoverished people of the oil delta area have protested the high unemployment and lack of public goods and social services amid the wealth of foreign companies and their domestic collaborators. Ethnic and sectarian strife is rampant. The federal government consistently lacks accountability for hundreds of millions of dollars collected from petroleum exports and revenues. To get a picture of present-day Africa, you can multiply Nigeria's ills several times (Nigeria, whose poverty and corruption may be representative of much of Africa, has one-sixth to one-seventh of the population of Africa).

In Nigeria, Ethiopia, and Zambia, neither growth nor development took place in the last quarter of the 20th century. In Kenya and Malawi, growth took place without much development. In most of Asia and parts of Latin America, both growth and development took place (inside front cover table).

Economic development can refer not only to the *rate* of change in economic well-being but also to its *level*. Between 1870 and 1998, Japan had a rapid rate of economic development. Its real (inflation-adjusted) growth rate in GNP per capita was about 2.6 percent yearly (Chapter 3), and there was substantial technical innovation, improved income distribution, and a decline in the share of the labor force in agriculture. In addition, Japan has a high level of economic development – its 2003 nominal per capita GNI, $34,510, placed it among the four richest countries in the world (inside front cover table). Other measures indicate most Japanese are well fed and housed, in good health, and well educated. Only a relative few are poor. This book will use both meanings of economic development.

Classification of Countries

When the serious study of development economics began in the late 1940s and early 1950s, it was common to think of rich and poor countries as separated by a wide gulf. The rich included Western Europe, the United States, Canada, Australia, New Zealand, and Japan; the poor included Asia, Africa, and Latin America.

The boundary between rich and poor countries, overly simple then, has become even more blurred during the first decade of the 21st century. Today, an increasing number of the high-and upper-middle-income countries are non-Western, and the fastest-growing countries are not necessarily the ones with the highest per capita GNP. Those countries considered to be poor in 1950 grew at about the same rate as rich countries during the subsequent three decades (see Chapter 3). A few of the poor countries in 1950 – such as Taiwan, Singapore, South Korea, Malaysia, Thailand, and Mexico – grew so much more rapidly than some higher-income countries in

1950 (Argentina, Uruguay, Venezuela, and New Zealand,[3] for example) that the GNI per capita of the countries of the world now forms a continuum rather than a dichotomy.[4]

Several GNP per capita rankings shifted substantially between 1950 and 2003. Among present-day Asian, African, and Latin American LDCs listed in both GNP per capita rankings for 1950 in a World Bank study (Morawetz 1977:77–79) and for 2003 from sources in the inside front cover table, Venezuela fell from first to thirteenth, Uruguay from second to sixth, Peru from 11th to 22nd, and Bolivia from 31st to 56th, being overpassed by war-affected Japan, Taiwan (which rose from thirty-fifth to first), and South Korea, which vaulted from forty-fifth to second. In Africa, Morocco, engaged in conflict with Algeria over the Spanish Sahara and with local labor unions over social policy, declined from 17th to 32nd; Zambia, with rapidly falling relative world copper export prices after the mid-1970s, fell from 22nd to 77th; and Ghana, with chronic cedi overvaluation and low farm prices that discouraged export expansion until the 1980s, dropped from a two-way tie for 15th and 16th to 59th. During this period, Taiwan and South Korea, then 43rd and 46th, respectively, but since graduating to the high-income category, leapfrogged Ghana, as did Malaysia, Turkey, Colombia, and Indonesia, as well as Thailand, which rose from 49th to 14th.

The classification of development used by the World Bank (2003h and inside back cover) divides countries into four groups on the basis of per capita GNI. In 2003, these categories were roughly low-income countries ($1,000 or less), lower-middle-income countries ($1,001–3,000), upper-middle-income countries ($3,000–9,000), and high-income countries ($9,000 or more). Each year, the boundary between categories rises with inflation, but few countries shifted categories between 1974 and 2003.

Sometimes the high-income countries are designated as developed countries (DCs) or the North, and middle- and low-income countries as developing, underdeveloped, or less-developed countries (LDCs), or the South. *Underdeveloped* was the term commonly used in the 1950s and 1960s, but it has since lost favor. Perhaps all countries are underdeveloped relative to their maximum potential. However, the

[3] New Zealand, ranked sixth in GNP per capita in the OECD in 1970, slipped to the bottom among OECD countries as a result of rapid inflation in the 1970s and the early 1980s. After that, an overzealous effort to keep inflation in check restricted growth, contributing to a further relative drop for New Zealand (Economist 2002:31–33).

[4] Graduating from developing to developed country is not merely of academic interest, as the U.S. Agency for International Development (and other aid agencies) withdrew the GSP (generalized system of tariff preferences, discussed in Chapter 17) to several graduates in the late 1980s. The GSP had accounted for more than 10 percent of U.S. exports to prosperous LDCs such as South Korea, Taiwan, Hong Kong, and Singapore; as much as 5 to 10 percent of these countries' exports may have been diverted to other countries as a result of the loss of the U.S. GSP. Additionally, the World Trade Organization/General Agreements of Tariffs and Trade (WTO/GATT), which sets rules for international trade, had expected reciprocity among developed countries in trade agreements but extended preferential treatment to developing countries (Koekkoek 1988:947–957). However, under the GATT Uruguay Round (1986–94), DCs expect tariff reciprocity from LDCs.

In 1995, the World Bank announced that South Korea became the first country to graduate from a borrowing country to a contributor to the Bank's loan funds for LDCs (Kansas City Star 1995:B-6).

term *underdeveloped*, like *less developed*, has declined in use recently, not because it is inaccurate, but because officials in international agencies consider it offensive. And the term *developing countries* appears to be a euphemism when applied to parts of sub-Saharan Africa that grew (and developed) very little, if at all, from the 1970s through the first decade of the 21st century. Nevertheless, this book uses the latter term, as it is widely understood within the world community to refer to countries with low and middle GNP or GNI per capita.[5]

The 134 Asian, African, and Latin American members of the **UN Conference on Trade and Development** (**UNCTAD**) often are referred to as the **third world**, a term originating in the early post–World War II decade.[6] By refusing to ally themselves with either the United States or the Soviet Union, nonaligned nations forged a third political unit in the United Nations. Today, the term has lost its original meaning, no longer connoting nonalignment but distinguishing the low-and middle-income economies of the developing world from the **first world**, the high-income capitalist countries, where capital and land are owned by private entities; and the **second world** socialist, or centrally directed countries, where the government owns the means of production.

Contrary to Western usage, the second world described its economic system as **socialism** rather than communism. In Marxian terminology, communism refers to a later stage of development when distribution is according to needs, money is absent, and the state withers away. With the collapse of the Soviet Union in 1991, and the transition of the formerly socialist economies of Russia, East-Central Europe, and Central Asia toward a capitalist or mixed economy, only Cuba and North Korea are still socialist. Even Sweden, a **social democracy**, with an emphasis on taxes and transfers to redistribute income, and France, with **indicative planning**, which states government expectations, aspirations, and intentions but not authorization (see Chapter 18), are classified in the first world.

The term second world is rarely used now, especially since 1989–91, when Eastern Europe, the former Soviet Union, Mongolia, China, and Vietnam have been moving, albeit haltingly, toward the end of transition, with the Communist Party's loss of monopoly political power, the private sector accounting for the majority of GDP, and the market becoming the "dominant coordinator of economic activities" (Svejnar 2002:25 and Kornai 1999). By the mid-to late 1990s, virtually all formerly socialist economies in Europe had passed their inflection point, the lowest point, for real GDP since 1989.

This generally rising trend following an early abrupt five-year or so decline still meant that real GDP per capita, 1989 to 2001, had fallen about one-third in Russia, more than one-half in Ukraine, and 10 to 40 percent in the rest of the former Soviet Union. By 2001, only four formerly socialist European nations had attained their

[5] I have rejected "emerging market" as reflecting the perspective of the DC investor in or seller to LDCs, and "emerging nation" as a euphemism not preferable to "developing country" or "developing nation."

[6] The purpose of UNCTAD or **Group of 77**, a permanent organization first convened with 77 members in 1964, is to enhance the position of LDCs in the world economy. The Group of 77 comprises four-fifths of the population of the world and one-fifth of its GNI.

1989 real GDP by 2001: Poland, which reached its 1989 level in the mid-1990s, and Slovenia, Hungary, and Slovakia, achieving 1989 levels in the late 1990s. Unemployment rose to 16 percent of the labor force in Poland, 10 percent in Russia, and 7–19 percent in the rest of East-Central Europe in 2000 (Svejnar 2002:9–11). Some states of the former Soviet Union are not likely to attain their 1989 real GDP until near the end of the first (or even the second) decade of the 21st century. With the widespread overestimation of the pre-1989 output of the former European and Soviet socialist countries, and the collapse of their output just after 1989, these countries are now included among developing (mostly middle-income) countries.

Branko Milanovic and Shlomo Yitzhaki (2001), in decomposing a global income distribution, ask, "Does the World Have a Middle Class?" between the first and third worlds, and answer "No." Their division gives new meaning to the concept of a tripartite world. The first world, richer or equal to real GDP per capita in Italy (PPP$8,000 or more in 1999), represents 16 percent of the world's population, and the third world, with income equal or less than Brazil's (PPP$3,470, about equal to the official poverty line in Western Europe), comprises 78 percent of the world. Only 8 percent is left for the world's middle class! This three-part grouping, leaving very little overlap, captures more than 90 percent of global inequality.[7] Chapter 6 discusses the components of global income inequality further.

The South Commission, chaired by the late Julius K. Nyerere, an articulate spokesperson for the poor who was head of government in Tanzania from 1961 to 1985, declares that "The primary bond that links the countries and peoples of the South is their desire to escape from poverty and underdevelopment and secure a better life for their citizens" (South Commission 1990:1). Yet economic interests still vary substantially between and within the following types of developing countries: (1) the 26 **economies in transition**[8] (East-Central Europe and the former Soviet Union, all low- and middle-income countries except high-income Slovenia), recognized as separate by the South Commission (ibid., pp. 3–4); (2) the eight members of the **Organization of Petroleum Exporting Countries**, or **OPEC** (not including high-income Kuwait and the United Arab Emirates); (3) the 48 poorest countries, designated as **least developed countries**, seven listed and starred in the cover table; and (4) 106 other developing countries.

The label "economies of transition" (implying a passage to the market) may be a euphemism of the DCs. Those citizens experiencing falling standards of living in the 1990s and first decade of the 21st century fear destitution before they arrive at the promised land of long-run equilibrium. Indeed, by 1995, in Russia, Ukraine, Lithuania, Poland, Hungary, Romania, Bulgaria, and Slovakia, the former ruling Communist Party (reincarnated as a socialist or social democratic party and opposed to central planning) had won a parliamentary plurality back from transient ruling

[7] Another division is that the world's lower class walks or hitches rides, the middle class rides bicycles or takes public transport, and the upper class drives automobiles and may take airline flights.

[8] These low- and middle-income countries resisted classification as "developing countries," despite widespread similarities to them in problems of stabilization and reform (see Chapter 19).

parties or cliques committed to rapid economic reform and liberalization. Still, as Chapter 19 indicates, today's economics structure is very different from that of the early 1990s.

Among OPEC members, high- and upper-middle-income economies are Kuwait, Libya, Saudi Arabia, Venezuela, the United Arab Emirates, and Gabon. Iran dropped from upper-middle-income status after the oil output disruptions during the 1979 Iranian revolution and the 1980–88 Iran-Iraq war, and Iraq also fell from the same status after the war with Iran, the U.N.-imposed trade ban in the 1990s, and the U.S.-led invasion of 2003. (Alnasrawi 2000:92 estimates that Iraq's GDP fell 82 percent from 1980 to 1998.) Indonesia, fluctuating between low-income and lower-middle-income status, and low-income Nigeria, each with populations of more than 90 million, lack substantial surpluses, spending most foreign exchange on basic import requirements, such as machinery, equipment, food, and raw materials.

In 1971, the United Nations designated 25 countries with a low per capita income, low share of manufacturing in gross product, and low adult literacy rates as **least developed**. A number of countries asked to be so designated, hoping to obtain economic assistance, especially from the United Nations. Since then, the United Nations has added other criteria to this list of marginalized economies, including low levels of human development (on indicators such as life expectancy, per capita calorie supplies, and primary and secondary school enrollment rates), natural handicaps (such as a small population, severe climatic risks, landlockedness, and geographical isolation), and low economic diversification. The list of countries has grown to 48 (including Afghanistan, Angola, Bangladesh, Burkina Faso, Burundi, Cambodia, Congo Kinshasa, Ethiopia, Haiti, Liberia, Malawi, Mali, Mozambique, Myanmar or Burma, Nepal, Niger, Rwanda, Somalia, Sudan, Tanzania, Uganda, Yemen, and Zambia), overlapping greatly with low-income countries. Most least developed countries, however, are small. Most U.N. supporters of this program feared that DCs would treat the proposal seriously only if the number of countries were clearly limited. Thus, populous countries, such as India, Pakistan, Vietnam, and Nigeria (and even Kenya) were not included (Simonis 1991:230–35; Blackwell 1986:40–41; for criticism, see Selwyn 1974:35–42).

The four **Asian tigers**, South Korea, Taiwan (China-Taipei), Singapore, and Hong Kong (the largest investor in and a major recipient of investment from China, and a part of China since 1997) are included among the **newly industrializing countries (NICs)**. The four, which have been growing rapidly despite stumbling temporarily in the 1997–98 Asian financial crisis, are industrially diversified and high-income countries. Nine less advanced economies, Mexico, Brazil, Malaysia, Turkey, Argentina, India, China, Portugal, and South Africa, among others, are sometimes included among NICs (Sewell, Tucker, and contributors 1988:204).

China, a lower-middle country on a GNI per capita basis, has a GNI PPP of $5,625 billion, second to the $10,110 billion of the United States in 2002, and ahead of Japan's $3,315 billion (World Bank 2004h:252–253). GNI is an indicator of potential military and diplomatic strength. If China's total growth continues to

exceed that of the United States, China may surpass the United States by the second to third decade of the 21st century.

LDC debtors, such as Argentina, Brazil, Bangladesh, Kenya, and Côte d'Ivoire, have been interested in the expansion of official loan facilities, especially to finance oil imports. Their attempts to improve financing were directed at OPEC countries. Nevertheless, OPEC countries have maintained an alliance with oil-importing, developing countries on a broad range of economic and political issues in international forums. Many OPEC countries and oil-importing LDCs shared a concern with debt relief and rescheduling, economic adjustment, and macroeconomic stabilization. Additionally, most OPEC countries, despite their high per-capita GNP, face problems common to most of the developing world – high illiteracy, high infant mortality, and dependence on imported technology. The NICs (both four and nine), which rely heavily on manufactured exports, have been more interested in reduced DC trade barriers against manufacturers than in the reduced DC agricultural subsidies and primary commodity stabilization sought by Uganda, Malawi, Sri Lanka, and Honduras.

Still in 1974 to 1975, NICs (none then among high-income countries) and OPEC countries joined with other developing economies in the successful adoption by the U.N. General Assembly of a declaration on principles and programs to reduce the adverse impact of the **international economic order** on LDC development. This order includes all economic relations and institutions, both formal and informal that link people living in different nations. These economic institutions include international agencies that lend capital, provide short-term credit, and administer international trade rules. Economic relations include bilateral and multilateral trade, aid, banking services, currency rates, capital movements, and technological transfers. Amid the tepid response by DCs, LDCs have changed their strategies, eschewing comprehensive strategies on the world order but continually pressing for concessions on various fronts, including lobbying for reduced DC tariffs and subsidies in the **World Trade Organization (WTO)**, which administers international trade rules; seeking debt reductions for highly-indebted poor countries; and tying U.N. millennium development goals to aid to decrease poverty and illiteracy.

Problems with Using GNP to Make Comparisons over Time

Economists use national-income data to compare a given country's GNP or GNI over time. The inside front cover table shows the economic growth of 63 of 123 countries, 1973 to 1998. For example, Malaysia's growth in GDP per capita was 4.16 percent yearly. On the basis of a simple calculation, you might state, "This means that Malaysia's GNP capita in 1998 was 277 percent (1.0416^{25}) of what it was in 1973." Yet a statement such as this, based on official growth figures, is subject to serious question as to accuracy.

Students know that the GNP price deflator affects government and World Bank figures for GNP and its growth. Whether the price deflator is 112.5, 125, 150, or another figure depends on which weighted price index is used. A number of countries,

especially in Africa and Eastern Europe, have not changed the quantity weighting of commodity prices since before 1972, despite substantial output structural change. Economic development changes prices with shifts in supply and demand. A newly modernizing country may find that a good, such as steel, which is of little importance in the output mix in the premodern era, looms large during the process of modernization. Whether the country uses early or late (sometimes premodern or modern) weights in devising a price index makes a substantial difference in determining how large the price deflator will be in adjusting GNP growth.

Let us use Malaysia to illustrate the price-index problem. In showing how Malaysia calculates its GNP price deflator, assume that Malaysia produces only two goods, electronic calculators and rubber boots. Suppose Malaysia produces 20 million electronic calculators at R400 apiece (with R the Malaysian currency ringgit) and 200 million pairs of rubber boots at R100 per ton in 1973, and 100 million calculators at R100 apiece and 400 million pairs of rubber boots at R200 per ton in 1998. The output of boots grew steadily as prices doubled, whereas the output of calculators increased fivefold and prices were cut substantially, as the industry benefited from large-scale economies and a rapidly-improving technology.

Malaysia may use the **Laspeyres price index**, applying base-period or 1973 (*not* late-year or 1998) quantities to weight prices. The aggregate price index

$$\mathrm{P} = \frac{\Sigma p_{\mathrm{n}} q_0}{\Sigma p_0 q_0} \tag{2-1}$$

where p is the price of the commodity produced, q the quantity of the commodity produced, *0* the base year (here 1973), and n the given year (1998).

$$\mathrm{P} = \frac{(20\text{ m. calculators} \times \mathrm{R}100) + (200\text{ m. units of boots} \times \mathrm{R}200)}{(20\text{ m. calculators} \times \mathrm{R}400) + (200\text{ m. units of boots} \times \mathrm{R}100)}$$

$$= \frac{\mathrm{R}42{,}000\text{ million}}{\mathrm{R}28{,}000\text{ million}} = 1.5$$

Many countries compute real growth (similar to Box 2-1) by using current price weights, similar to the **Paasche price index**, which applies terminal-year (1998) outputs for weighting prices, so that price index

$$\mathrm{P} = \frac{\Sigma p_{\mathrm{n}} q_{\mathrm{n}}}{\Sigma p_0 q_{\mathrm{n}}} \tag{2-2}$$

In Malaysia, then

$$\mathrm{P} = \frac{(100\text{ m. calculators} \times \mathrm{R}100) + (400\text{ m. units of boots} \times \mathrm{R}200)}{(100\text{ m. calculators} \times \mathrm{R}400) + (400\text{ m. units of boots} \times \mathrm{R}100)}$$

$$= \frac{\mathrm{R}90{,}000\text{ million}}{\mathrm{R}80{,}000\text{ million}} = 1.125$$

In Malaysia, the GNP price deflator using the Laspeyres index, 1.5, exceeds that using the Paasche index, 1.125. To the extent that industries with more rapid growth, such as the electronic calculator industry, show relatively less rapid increases (or here even reductions) in price, a Laspeyres index, which uses base-period weights, will

show higher values than Paasche-type indexes, which use weights from a current period.[9] The Laspeyres index is biased upward and the Paasche index biased downward. Although the **Fisher ideal index**, a geometric average of the Laspeyres and Paasche indices, removes bias, it is not used much because of its complexity.

National-income statisticians may not find adequate price weights for wonder drugs and other new goods recently discovered. In "Viagra and the Wealth of Nations," Paul Krugman asks (1998:24), How do we compare today's price for a good not available at any price in 1973 – the Internet, fax machine, microwave oven, video-cassette player, automatic teller machine, music file transfer, or a drug to cure cancer, male impotence (Viagra), baldness, and Altzheimer's? What was the cost of a substitute for Viagra or electronic mail in 1973? Any imputation falls short of capturing the real improvements in today's living standards from a wider choice of goods and services.

Problems in Comparing Developed and Developing Countries' GNP

International agencies generally do not collect primary data themselves. These agencies almost always base their statistical publications on data gathered by national statistical agencies that often use different concepts and methods of data collection. The United Nations has not yet successfully standardized these concepts and methodologies (Srinivasan 1994:3–27). But aside from these problems, there are other incomparabilities, especially between the GNPs of rich and poor countries.

According to the cover table, per capita GNI or GNP varies greatly between countries. For example, compare the GNP per capita of India and the United States. The 2003 U.S. GNP per capita of $37,610 is more than 70 times that of India's $530. Could an Indian actually survive for one year on less than the weekly income of an average American? In reality, income differences between developed and developing countries are very much overstated.

One difference is that developed countries are located in predominantly temperate zones, and LDCs are primarily in the tropics. In temperate areas such as the northern United States, heating, insulation, and warmer clothing merely offset the disadvantages of cold weather and add to GNP without increasing satisfaction.

Apart from this discrepancy, *the major sources of error and imprecision in comparing GNP figures for developed and developing countries are as follows*:

1. GNP is understated for developing countries, because a greater proportion of their goods and services are produced within the home by family members for their own use rather than for sale in the marketplace. Much of the productive activity of the peasant is considered an integral part of family and village life, not an economic transaction. The economic contribution of the housewife who grinds the flour, bakes the bread, and cares for the clothes may not be measured

[9] A useful mnemonic device for remembering Laspeyres is "long time ago" and Paasche is "present."

in GNP in poor countries, but the same services *when purchased* are included in a rich country's GNP. In addition, subsistence farmer investments in soil improvements and the cultivation of virgin land are invariably understated in national income accounts. Although a shift from subsistence to commercial production may be slow enough to be dismissed in a country's GNP for three to five years, it is an important distortion for longer run or intercountry comparisons. Heston (1994:39) estimates that, in 1975 in LDCs, the mean share of the subsistence sector in GDP was 15 percent but does not estimate GDP's corresponding margin of error for GDP.

In some ways, distortions in income differences between the poor country and rich country are analogous to those between the United States in the 19th and 20th centuries. Although estimates indicate U.S. real per capita income for 1870 was one-eleventh what it was in 1998, adjustments would indicate a figure closer to one-fifth. Great-great-great-grandfather grew his fruits and vegetables, raised dairy cattle for milk and sheep for wool, and gathered and chopped firewood. Great-great-great-grandmother processed the food, prepared the meals, and sewed quilts and clothes for the family. But few of these activities added to national product. Today, their great-great-great-grandchild purchases milk, fruits, and vegetables at the supermarket, buys meals at restaurants, and pays heating bills – all items that contribute to national product. Moreover, our great-great-great-grandparents' grain output, when estimated, was valued at farm-gate price, excluding the family's food processing. Statistics show U.S. cereal product consumption increased by 24 percent from 1889 to 1919, although it decreased 33.5 percent if you impute the value of economic processes at home, such as milling, grinding, and baking (Usher 1968:15; Kuznets 1971:10–14). Analogously, most food consumed by the poor in low income economies is valued at the farm price, because most grow their own food or buy food at farm prices. Thus, part of today's increased GNP per capita (over that of our great-great-great-grandparents) occurs because a larger percentage of consumption enters the market and is measured in national income.

2. GNP may be understated for developing countries, where household size is substantially larger than that in developed countries, resulting in household scale economies. Although it is not accurate to say that "two can live as cheaply as one," it is true that two can live more cheaply together than separately. India's average household size is 5.2 compared to the U.S.'s 2.6; moreover, a larger percentage of the average Indian household consists of children, who consume much less food than adults. If we adjust India's income to an equivalent-adult, equivalent-household (EAEH) income based on household size and children percentage, India's per capita income is roughly 10 percent higher (Firebaugh 2003:46–69, who provides EAEH adjustment. The EAEH adjustment in Africa is more than 10 percent, as its population growth rate and average household size are larger than India's; see Chapter 8).
3. GNP may be overstated for developed countries, because a number of items included in their national incomes are intermediate goods, reflecting the costs

of producing or guarding income.[10] The Western executive's business suits and commuting costs should probably be considered means of increasing production rather than final consumer goods and services, just as expenditures on smog eradication and water purification that add to national income are really costs of urbanization and economic growth. Furthermore, part of defense spending is a cost of guarding higher incomes, and not for national power and prestige.[11]

4. The exchange rate used to convert GNP in local currency units into U.S. dollars, if market clearing, is based on the relative prices of internationally traded goods (and not on purchasing power – see later). *However, GNP is understated for developing countries because many of their cheap, labor-intensive, unstandardized goods and services have no impact on the exchange rate, as they are not traded*. Many of the necessities of life are very low priced in dollar terms. In 2003, for example, rice – the staple in the diet of an Indian villager – cost 10 rupees (about 20 U.S. cents) per capita per day.[12] Also, services in India tend to be inexpensive. Thus, 2003 annual salaries for elementary teachers were about one-tenth as high as those in the United States – a case that surely overstates differences in the quality of instruction. (See Chapter 17, which indicates that recently trade in services has increased with enhanced globalization, which will reduce somewhat the scope for this distortion in the future.)
5. GNP is overstated for countries (usually developing countries) where the price of foreign exchange is less than a market-clearing price. This overstatement can result from import barriers, restrictions on access to foreign currency, export subsidies, or state trading. Suppose that in 2003 India's central bank had allowed the exchange rate to reach its free market rate, Rs. 85 = \$1, rather than the official rate of Rs. 44.20 = \$1. Then the GNP per capita figure of Rs. 23,430 would have been \$276 (23,430 divided by 85) rather than \$530 (23,430 divided by 44.20). On balance, other adjustments outweigh this effect, so that income differences between rich and poor countries tend to be overstated.[13]

[10] This statement is somewhat speculative, as intermediate-good output is difficult to measure. In addition, as LDCs become more affluent and urbanized, the percentage of their output devoted to intermediate goods has increased.

[11] When we use GNP as a measure of welfare, we do not inquire about the composition of output between civilian and military goods, between milk and cigarettes, or between pornographic literature and Shakespeare. Most economists assume, for example, that military spending, when it adds to national prestige and power, increases the satisfaction of its citizens. Yet countries such as Benin, which spend only \$6 per person on the military, have more resources available for civilian goods and services than Pakistan, which spends \$27 per person on the military (U.N. Development Program 1994:170–171; World Bank 1994:162–163).

[12] Sen (1992:115) argues that "money buys less of some types of commodities in the richer countries." For example, in most U.S. localities, money cannot buy repairs for toasters or staplers, or the mending of shirts and sweaters.

[13] Kuznets (1974:333–336) argues that nonagricultural prices divided by agricultural prices are overstated in LDCs relative to DCs, thus exaggerating the importance of the fastest growing industrial sectors and the size of recent LDC growth. However, the finding of Maddison (1983:27–41) is the reverse of Kuznets's contention, indicating that, if anything, the nonagricultural sector's weight is understated in developing countries relative to that in developed countries.

Comparison-Resistant Services

Comparison-resistant services, like health care, education, and government administration, which comprise more than 10 percent of most countries' expenditure, distort cross-national, but not necessarily DC-LDC, GNP comparisons. People do not buy a clearly defined quantity of university education, crime prevention, health maintenance, and forest management as they do food and clothing. The usual ways of measuring service output are unsatisfactory: by labor input cost or to use productivity differences for a standardized service (for example, a tonsillectomy) as representative of general differences (for example, in medicine) (Kravis 1984:1–57; Summers and Heston 1991:330–31).[14] However, because health care and basic education are labor intensive, a poor economy needs less money than a rich economy to provide the same services (Sen 1999:48).

Purchasing-Power Parity (PPP)

The next sections, together with Chapter 4 on adjusted net savings and Chapter 13 on green national accounting, examine alternatives to GNP at existing exchange rates as a measure to compare economic welfare.

Earlier we pointed out that exchange rates omit nontraded goods, and that the relative prices of nontraded goods to traded goods are lower in developing than in developed countries. The International Comparison Project (ICP) of the U.N. Statistical Office and the University of Pennsylvania converts a country's GNP in its own currency into purchasing-power parity (or international) dollars (PPP$) by measuring the country's purchasing power relative to all other countries rather than using the exchange rate.[15] Penn researchers Robert Summers and Alan Heston compute the **price level of GNP (*P*)** as the ratio of the **purchasing power parity (PPP)** exchange rate to the actual (or market) exchange rate, where both exchange rates are measured as the domestic-currency price of the U.S. dollar. (**GDP** or **gross domestic product**, sometimes used, is income earned within a country's boundaries instead of gross national product, income accruing to a country's residents.)

[14] There are additional distortions in using GNP to measure welfare that affect comparisons, but not those between DCs and LDCs. Per-capita GNP figures do not consider differences in average work week and average leisure between two countries. In addition, GNP measures all activity generated through the market whether the activity is productive, unproductive, or destructive. An outbreak of influenza leading to greater drug sales increases GNP, although absence of the disease, by decreasing pharmaceutical consumption, reduces GNP. Likewise, durable buildings decrease future GNP because they reduce future construction demand. Wars or earthquakes may increase GNP, since they lead to reconstruction. Furthermore, during war, as tanks and bombers go up in smoke, the effective demand for new production may increase (Valaskakis and Martin 1980).

Another distortion is the black market, which is not adequately covered in official data. The black market originates in the process of evading or avoiding the fiscal or legal system (of prices or exchange rates). Srinivasan (1994:8–9) estimates that black-market income comprised 18 to 21 percent of official GDP in India in 1980–81. Although this share of GDP is probably larger than black-market income shares in U.S. GDP, how the relative share of black-market income varies generally between DCs and LDCs is not certain.

[15] More recently, the World Bank has computed PPPs, although Deaton (2003) is concerned that they are less stable and accurate than the previous U.N.-Penn figures.

The PPP exchange rate is that at which the goods and services comprising gross domestic product cost the same in both countries. If people around the world consumed a single commodity, such as rice, constructing PPP exchange rates would be simple. Analogously, the London *Economist* assumes only one good, the Big Mac, calculating the Big Mac PPP, the exchange rate at which this McDonald's hamburger costs the same in all countries.

In 2003, a Big Mac price of Real 4.55 in Brazil and \$2.71 in the United States meant a PPP of Real 1.68 = \$1 compared to the actual exchange rate of Real 3.07 = \$1, so that *P* was 55 percent and the Real (Brazil's currency) was undervalued by almost 45 percent, indicating hamburgers were cheap in Brazil. Similarly, the South Korean Big Mac price of Wan 3537 indicates a PPP of Wan 1296 = \$1 compared to an exchange rate of Wan 1258 = \$1, with *P* of 1.03 percent. In 2003, the U.S. dollar was strong, with only a few currencies, such as the Swiss franc, overvalued; the Big Mac price of Sfr5.86 corresponds to a PPP of Sfr2.21, compared to the actual rate of Sfr1.30, with *P* 170 so that the Swiss franc was overvalued by 70 percent (Economist 2003b:68; Economist 2003e).[16] In the real world, although the purchasing power of rupees, the Indian currency, Rs. 9.40 = \$1, the exchange rate is Rs. 50.71 = \$1, so that India's *P* is 18.8 percent of that of the United States. The nominal GNP per capita for 2001, \$460, divided by *P*, 18.8 percent, equals PPP\$2,450 or real GNP per capita.

The Penn economists use a series of simultaneous equations to solve the PPP for 81 (60 in the mid-1980s and 34 in the 1970s) benchmark and quasi-benchmark countries and world average prices for 400 to 700 commodities and services, specified in detail for quantity and quality. The averaging, which uses a specialized multiple regression, is designed to consider the fact that not every country prices every item. If a country fails to price an item (for example, the rental of an apartment in a 20-year-old multistoried building, of 120 square meters, with central heating, and one bathroom), researchers calculate the cost of making appropriate quality adjustments to a substitute item that is directly observable. Indeed, the Penn researchers describe their basic procedure as the potato-is-a-potato rule. "A potato with given physical characteristics was treated not only as the same produce but also as the same quantity, whether it was purchased in the country or in the city, in January or in June, by the piece or by the bushel, and whether it was purchased at a retail market or consumed out of own production" (Kravis, Heston, and Summers 1983:31). For 57 nonbenchmark countries, the economists use a shortcut estimating equation in which PPP is a function of nominal GNP per capita, steel production per capita, telephone use, motor vehicles, and other variables (Summers and Heston 1991:327–68 and CD).

[16] Should MacDonald's open a franchise in India, it would probably not serve Big Macs, as many Indians refrain from eating beef for religious reasons.

John Williamson (1994:13) is not amused by Big Mac PPPs. He rightly indicates that the effort of the *Economist*, which interprets PPP in terms of the classic contention that the nominal exchange rate should reflect the purchasing power of one currency against another, is a "misconceived endeavor." Moreover, Williamson points out a major discrepancy between the Big Mac and Burger King Whopper index.

Economist (2004a:67) calculates a Starbucks' tall-latte index, comparing it to the Big Mac index.

The World Bank–Penn estimates indicate a *P* of 29.0 percent for sub-Saharan Africa, 19.6 percent for South Asia, 22.3 percent for East Asia and the Pacific, 38.2 percent for the Middle East and North Africa, 50.3 percent for Latin America and the Caribbean, 28.0 percent for East and Central Europe and Central Asia, and 96.5 percent for the high-income economies. The figure for sub-Saharan Africa means that its purchasing-power adjusted (I$) GNP per capita, $1,620, is 3.447 (1/.290) times its GNP converted into U.S. dollars at the existing exchange rate, $470 (World Bank 2003h:235).

How much must an average-income earner in India have to earn in U.S. dollars to attain the same living standard (that is, same basket of goods) in the United States that the earner does in India? How does this dollar amount compare with the average income earned in the United States?

P (or the price level of GNP), 18.4 percent for India, indicates that U.S. per-capita GNP is not 70 times but 13 ($70 \times .184$) times that of India. (The percentage of GNP to GDP is from the CD from Summers and Heston 1991:327–68.) The U.S. per-capita expenditure on food is almost 11 times what it is in India, but this is only six times with adjustments in purchasing power. For staples such as bread, rice, and cereals, U.S. per-capita consumption is twice that of India but only 1.5 times as much with the adjustment (Kravis 1984:1–57; Summers and Heston 1988:1–25; Summers and Heston 1984:207–262; Kravis 1986:3–26; Kravis, Heston, and Summers 1978b; Kravis, Heston, and Summers, 1978a:215–242; Kravis, Heston, and Summers 1993; Summers and Heston 1991:327–368). Or, as Princeton's Angus Deaton (2003) indicates, Rs. 442 would convert to $10 at the official exchange rate but to $44 at the "food" exchange rate.

Yet these comparisons do not provide answers to these two questions. You need to determine the dollar price of India's basket of goods and services (wheat cakes, mangos, papayas, rice, sitars, brass tables, and so forth) in the United States and then compare this figure to the dollar price of U.S. average income. Although we cannot indicate the ratio of the dollar price of GNP per capita in the United States to that in India, the ratio is clearly less than 28. If Indians need to replicate their goods, and cannot substitute wheat bread for wheat cakes, oranges for mangos, potatoes for rice, violins for sitars, or wooden for brass tables, the ratio might be very low; indeed, it might cost the U.S. per-capita income to replicate these goods in the United States. How detailed the goods are specified determines how high the ratio is and how well off India appears.

Put the shoe on the other foot. How much must an average income earner in the United States earn in rupees to secure the same living standard in India that the person acquires in the United States? The rupee price of an average U.S. basket of goods (including milkshakes, hamburgers, computers, automobiles, rock-and-roll compact disks, and so forth) would be substantially more than 28 times the average Indian basket. The U.S. consumption basket would be more costly relative to the Indian basket the more Americans refuse, for example, to consume yogurt and vegetables instead of milkshakes and hamburgers.

Dan Usher (1968) suggests that you can compare income per capita more directly if you calculate the geometric average of (1) the ratio of the U.S. to Indian output of per

capita goods and services in relative prices in dollars, and (2) the ratio of the U.S. to Indian output of per capita goods and services in relative prices in rupees. We might expect this geometric average to correspond roughly to ICP results. Both analyses, however, assume no substitution in consumption resulting from changes in prices.

A majority of the 138 countries with PPP adjustments are either nonbenchmark countries (and thus based on an estimating equation) or quasi-benchmark countries, with substantial missing variables for commodities or services. The problems are even more serious when you require a reliable time series. The quality of data for former socialist countries is especially suspect. T. N. Srinivasan (1994:241) contends that Summers and Heston "use problematic procedures of extrapolation from data for a few years and countries to many more." Both nominal GNP and its PPP are subject to a margin of error.

PPP, based on calculating detailed prices for a large number of commodities, represents the product of substantial time and effort. Nevertheless, GNP PPP is relatively easy to interpret, and in recent years, readily available, as *P*s and PPPs are assumed relatively stable from year to year (World Bank 2003h:245).

By and large, the greater the difference in per capita income between two countries, the greater the correction for purchasing power. Chapter 6 indicates that worldwide income inequality is reduced considerably when the gross product in developing countries is adjusted for purchasing power.

In this book, we use PPP national-income data when they are available, because they more accurately reveal relative material well-being.

Measurement Errors for GNP or GDP Adjusted for Purchasing Power

What are the confidence intervals for gross product PPPs? (Whether we use GDP or GDP is not an issue, as the cross-national correlation of GDP and GNP is close to perfection [with r = 1.0] for the world, according to Firebaugh 2003:34, 100). The Penn researchers assign letter grades from "A" to "D" for the quality of GDP estimates for each country, 1960 to 1989. The margin of error is: A = ±9 percent (18 nations), B+ = ±12 percent (7 nations), B = ±15 percent, C+ = ±18 percent (1 nation), C = ±21 percent (34 nations), C− = ±24 percent, D+ = ±27 percent (11 nations), and D = ±30 percent (38 nations) (Firebaugh 2003:111–112, 232; Summers, Heston, Aten, and Nuxoll 1994; Summers and Heston 1991: appendix 2). For China, a special case, comprising one-fifth of the world's population, the error is ±50 percent (Firebaugh 2003:111).[17] Although there is no reliability grade for World Bank data after 1989, we can assume confidence intervals similar to earlier data.

This margin of error may shock many readers. Kravis and Lipsey (1990: abstract) contend that the margin of error for the worst GDP PPP estimates "is still a small range of error compared to that stemming from the use of exchange rates

[17] For example, as Chapter 19 indicates, Chinese growth rates are overstated as they are heavily based on growth in physical output rather than deflated expenditures. See Lardy (1992:150–155).

to convert own-currency to common currency measures of output." Because nations are relatively consistent in procedures used over time, then the direction of bias is likely to be consistent over time, meaning that the margin of error for growth rates is much smaller (Firebaugh 2003:109–110, 232–232).

Derek Blades (1980:71–72) estimates that, given the errors of population growth and price weights used to aggregate output indicators, the confidence interval for the economic growth of LDCs may be as much as 2 to 3 percent. For Africa, Blades suggests an estimated growth of 0 percent in GNP per capita yearly, 1973 to 1998 (inside front cover table), together with a confidence interval of 3 percent, means an estimated growth rate that is likely to be between −3 percent and 3 percent.[18]

Additionally, there may be problems in estimates of sectoral aggregate output that distort GNP figures. In many LDCs, production estimates for domestic food crops, often the largest sector in the economy, are based on informal estimates agricultural officers make about whether output increased or decreased. Here even small errors may be of major importance. Assume GNP in 2003 is $10,000 million. If GNP in 2004 is $10,300 million, with a 5-percent margin, much from agriculture, the range is between $9785 million (a 2.15-percent decrease in GNP) and $10,815 million (an 8.15-percent increase).

A Better Measure of Economic Development?

But even with the more precise U.N.–Penn figures, using income as a measure of development is a weak tool, and efforts have been made to replace GNP per capita with a more reliable measure – usually an index of several economic and social variables.

THE PHYSICAL QUALITY OF LIFE INDEX (PQLI)

One alternative measure of welfare is the **PQLI**, which combines three indicators – infant mortality rate, life expectancy (at age one, to not overlap with infant mortality), and adult literacy rate, the ability to read *and* write in any language (in percentage). The first two variables represent the effects of nutrition, public health, income, and the general environment. Life expectancy is positively correlated with GNP per capita through the impact of GNP on incomes of the poor and public spending, especially on health care; indeed, GNP adds no extra explanation to those of poverty and public health expenditure (Sen 1999:44; Anand and Ravallion 1993). Infant mortality reflects the availability of clean water, the condition of the home environment, and the mother's health. Literacy is a measure of well-being as well as a requirement for a country's economic development (McLaughlin et al. 1979:129–133).

Critics of this measure stress a close correlation between the three PQLI indicators and the composite index and GNP per capita. Nevertheless, figures on PQLI (between the most unfavorable performance in 1950, valued at 0, and the most favorable

[18] I have adjusted Blades's statement to apply to 1973–98 growth rates shown in the inside front cover table (Blades 1980:71–72; Heston 1994:48–49).

figure, 100, expected by the year 2000) reveal exceptions to the correlation (see inside front cover table). For instance, China's life expectancy and infant mortality rates, matching those of the United States in 1940, were achieved at a per-capita income of $490. By contrast, a relatively high per capita does not necessarily reflect widespread well-being, as in the case of affluent oil countries such as Saudi Arabia and Oman.

However, PQLI indicators are of limited use in distinguishing levels of development beyond middle-income countries. All three PQLI variables – life expectancy, literacy, and infant mortality – are highly related to per-capita income *until* nutrition, health, and education reach certain high levels, then the value of the variables levels off. These indicators have asymptotic limits reflecting biological and physical maxima (Hicks and Streeten 1979:572–575.) Thus, except for city-states Hong Kong and Singapore and affluent oil exporters Kuwait and the United Arab Emirates, all high-income countries have infant mortality rates below 10 per 1000, literacy rates of 98 percent or above (except for Portugal's and Singapore's 92 percent, Israel's 95 percent, and Greece's 97 percent), and a life expectancy of 75–80 years (except for South Korea with 73 years).

There are difficulties with PQLI not encountered with standard per-capita GNP data. Scaling and weighting a composite index, as with PQLI, present a problem, because rescaling raw data to a 0–1 range is somewhat arbitrary and there is no clear conceptual rationale for giving the core indicators equal weights. Moreover, 87 of 117 LDCs with PQLI figures have not compiled reliable data on life expectancy since 1980, and 60 LDCs lack data on adult literacy since 1980 (Srinivasan 1994b:238–243; Srinivasan 1994c:1–2). In addition, as scholars changed their estimates of the most favorable figures for components by 2000, the maxima and scaling for PQLI indicators have had to be changed. Furthermore, economists question the meaning of the PQLI growth rate, called the **disparity reduction rate**, not only because of the unreliable time-series data but also because most high-income countries are pressing near the practical maximum (99 to 100 percent for adult literacy, for example) for some indicators, giving little scope for growth.

THE HUMAN DEVELOPMENT INDEX (HDI)

The UN Development Program (UNDP) defines human development as "a process of enlarging people's choices. The most critical ones are to lead a long and healthy life, to be educated and enjoy a decent standard of living" (U.N. Development Program 1990:10). In the face of widespread assessment that the 1980s was a "lost decade" for developing countries, UNDP has argued that human development disparities between DCs and LDCs are much less than disparities in income per capita, and that human development narrowed considerably between DCs and LDCs while income gaps were widening (U.N. Development Program 1991:16–18). In its effort to measure human development, UNDP has constructed another alternative measure of welfare, the **Human Development Index**.

The **HDI** summarizes a great deal of social performance in a single composite index combining three indicators – longevity (a proxy for health and nutrition), education,

and living standards. Educational attainment is a composite of two variables: a two-thirds weight based on the adult literacy rate (in percentage) and a one-third weight on the combined primary, secondary, and tertiary gross enrollment rate (in percentage). Longevity is measured by average life expectancy (in years) at birth, computed by assuming that babies born in a given year will experience the current death rate of each age cohort (the first year, second year, third year, and so forth through the *n*th year) throughout their lifetime. The indicator for living standards is based on the logarithm of per capita GDP in PPP dollars.[19]

Calculating the HDI. To construct a composite index, you determine the maximum and minimum values for each of the three variables – in 2000, life expectancy, from 25 to 85 years, education, adult literacy from 0 to 100, gross enrollment rate from 0 to 100%, and GDP per capita (PPP USS) from \$100 to \$40,000. You normalize the observed value for each of the three variables into a 0–1 scale. Then you express the performance in each dimension as a value between 0 and 1 by the following formula:

$$\text{Dimension index} = \text{actual value} \;-\text{minimum value/maximum value} \;-\text{minimum value}$$

Let us compare the indexes and their calculation for India to those of the United States for 2000 (U.N. Development Program 2002:149–152).

Calculating the life expectancy index:

Maximum life expectancy = 85	India's life expectancy index $= (63.3 - 25)/(85 - 25) = 38.3/60 = 0.64$
Minimum life expectancy = 25	U.S. life expectancy index $= (77.0 - 25)/(85 - 25) = 52/60 = 0.87$

Calculating the adult literacy index:

Maximum adult literacy rate = 100	India's adult literacy index $= 57.3/100 = 0.573$
Minimum adult literacy rate = 0	U.S. adult literacy index $= 100/100 = 1.000$

Calculating the combined primary, secondary, and tertiary gross enrollment rate:

Maximum combined primary, secondary, and tertiary gross enrollment rate = 100	India's combined primary, secondary, and tertiary gross enrollment rate $= 55/100 = 0.55$
Minimum combined primary, secondary, and tertiary gross enrollment rate = 0	U.S. combined primary, secondary, and tertiary gross enrollment rate $= 95/100 = 0.95$

[19] Ranis, Stewart, and Samman (2005:27) show that "The correlations with under-five mortality [rate per 1,000 live births] yield exactly the same results as HDI. Under-five mortality also shows similar correlations with the basic elements of HD [human development] as with HDI. . . . The under-five mortality rate has advantages for some purposes, since it is more precise in terms of changes over time and less complicated to calculate."

Calculating the education index:

India's education index = 2/3 (adult literacy index) + 1/3 (gross enrollment index) = 2/3(0.573) + 1/3(0.55) = 0.382 + 0.1833 = 0.5653, which UN Development Program rounds off to 0.57

U.S. education index = 2/3 (adult literacy index) + 1/3 (gross enrollment index) = 2/3(1.000) + 1/3(0.95) = 0.6667 + 0.3167/3 = 0.9834, rounded off to 0.98

Calculating the GDP index:

Logarithm of the maximum GDP per capita (PPP US$) 40,000 = 4.6021

Logarithm of the minimum GDP per capita (PPP US$) 100 = 2.0000

Logarithm of India's GDP per capita (PPP US$) 2,358 in 2000 = 3.3725

India's GDP index = 3.3725 − 2/4.6021 − 2 = 1.3725/2.6021 = 0.53

Logarithm of U.S. GDP per capita (PPP US$) 34,142 in 2000 = 4.53329

U.S. GDP index = 4.53329 − 2/4.6021 − 2 = 2.53329/2.6021 = 0.97

Calculating the HDI:

Once you calculate the dimension indices – life expectancy, education, and GDP, determining HDI is straightforward:

HDI = 1/3 (life expectancy index) + 1/3 (education index) + 1/3 (GDP index)

For India, HDI = 0.21 + 0.19 + 0.177 = .577

For the United States, HDI = 0.29 + 0.326 + 0.323 = 0.939

U.N. Development Program (2002: 149–152, 253).

Some critics argue that development problems are essentially economic problems, a matter of stimulating economic growth. Richard Reichel (1991:57–67) finds that PPP per capita income explains a large proportion of other HDI components. The proportion of variation explained, or R^2, is 0.783 for life expectancy and 0.535 for literacy rate. He concludes that we do not need to measure human development separately from average income. However, most development experts and international agencies reject Reichel's position, arguing that income measures still neglect many important aspects of the development process, leaving much of human development unexplained (see also Trabold-Nubler 1991:236–243).

One example of a substantial divergence between HDI and income rankings is that of South Africa, which ranked 107th in GNP per capita but only 129th among 173 countries in HDI (U.N. Development Program 2002:149–152). Despite the introduction of a universal adult ballot in South Africa in 1994, the country's social indicators still reflect the legacy of decades of a white-ruled **apartheid** (racially separate and discriminatory) economy. South Africa, with 0.695 HDI, is not explained well by its GDP per capita (PPP$9510), comparable to high-human-development economies Chile (0.833 HDI) and Poland (HDI 0.831). Rather, South Africa's HDI, about the same as Algeria, with roughly half the PPP$ GDP per

capita, and Syria, with less than half average real GDP, may better reflect its welfare ranking.

In 1992, the purchasing-power adjusted GDP per capita of black, Asian, and mixed-race South Africa was PPP$1,710, about the same as Senegal's PPP$1,680, and in excess of the PPP$1,116 for Africa as a whole. Yet this low income for 36.1 million nonwhite South Africans stands in stark contrast to that of 7.3 million white South Africans, PPP$14,920 income per capita, a figure higher than New Zealand's PPP$13,970. Life expectancy, an indicator of health, was 62 in South Africa compared to 72 in Chile and Poland. But life expectancy was only 52 for black South Africans, 62 for Asians and mixed races, and 74 for whites, 54 for Africa generally, and 77 for DCs, whereas the adult literacy rate was 67 percent for nonwhites and 85 percent for whites (Nafziger 1988:18; Lecaillon, Paukert, Morrisson, and Germidis 1984:46; U.N. Development Program 1993:27, 136; U.N. Development Program 1994:14–17, 98, 130–131). Racial differences in human capital and discrimination based on social interactions, networks (from racially segregated housing), informal screening devices, self-reproducing educational disadvantages, and other socially based means persisted, resulting in no improvement in the relative status of majority black and mixed-race workers between 1992 and the late 1990s (Allanson, Atkins, and Hinks 2002:443–459).

HDI, when disaggregated regionally, can vary widely within a country. Kerala, a south Indian state with one of the lowest incomes per capita in the country but with a more favorable policy on female education and property ownership, communal medical care, and old-age pensions, surpasses the Indian average in the following categories: a life expectancy at birth of 77 years compared to 63 years, an infant mortality rate of 16 compared to 67 per 1,000, an adult literacy rate of 91 percent compared to 57 percent, a female literacy rate of 94 percent compared to 54 percent, and an HDI of 0.68 compared to 0.59 (World Bank 2004h:44–45; U.N. Development Program 2003:239; U.N. Development Program 1993:27, 136; U.N. Development Program 1994:14–17, 98, 130–131).

In 1994 in Chiapas state, the Zapatista army, representing Indian smallholders and landless workers or *campesinos*, rebelled against Mexico's ruling party, which they believed was responsible for their poverty and distress. In the state, PPP$ GDP per capita was 43 percent below the national average and adult literacy 24 percent below the national average. During the first decade of the 21st century, Northeast Brazil lags behind Southern Brazil 71 to 54 years in life expectancy, 93 percent to 61 percent in adult literacy rate, and 40 percent in real GDP per capita, disparities larger than those in Mexico (World Bank 1993i:238–304; U.N. Development Program 1993: 19, 135–137; U.N. Development Program 1994:98–99; World Bank 2003h; Sen 1992:126–127; U.N. Development Program 2003:62–63).

HDI does not capture the adverse effect of gender disparities on social progress. In 1995, the U.N. Development Program measured the **gender-related development index (GDI)**, or HDI adjusted for gender inequality. GDI concentrates on the same variables as HDI but notes inequality in achievement between men and women,

imposing a penalty for such inequality. The GDI is based on female shares of earned income, the life expectancy of women relative to men (allowing for the biological edge that women enjoy in living longer than men), and a weighted average of female literacy and schooling relative to those of males. However, GDI does not include variables not easily measured such as women's participation in community life and decision making, their access to professional opportunities, consumption of resources within the family, dignity, and personal security. Because gender inequality exists in every country, the GDI is always lower than the HDI. The top-ranking countries in GDI are Australia, the Nordic countries of Norway, Sweden, and Finland, North America (Canada and the United States), Belgium, Iceland, Netherlands, and the United Kingdom. The bottom six places, in ascending order for GDI, include Sierre Leone, Niger, Burundi, Mozambique, Burkina Faso, and Ethiopia; Afghanistan, ranked lowest in 1995 but lacks 2000 data. In these countries, women face a double deprivation – low human development achievement and women's achievement lower than men (U.N. Development Program 1991:72–79; U.N. Development Program 2002:222–242; 255–258).

Many who agree that human development needs separate attention are critical of HDI. HDI has similar problems to those of PQLI – problems of scaling and weighting a composite index, the lack of rationale for equal weights for the core indicators, and the lack of reliable data since 1980. Additionally, school enrollment figures are not internationally comparable, as school quality, dropout rates, and length of school year vary substantially among and within countries.

Before 1994, the U.N. Development Program shifted the goalposts for life expectancy, education, and real GDP per capita each year, not allowing economists to measure growth over time; thus, a country's HDI could fall with no change or even an increase in all components if maximum and minimum values rose over time. In 1994, however, the U.N. Development Program set goalposts for HDI components that are constant over time so that economists, when they acquire HDI indices retrospectively, can compute growth over time (Chamie 1994:131–146; Behrman and Rosenzweig 1994:147–171; Srinivasan 1994b:238–243; Srinivasan 1994c:1–2; U.N. Development Program 1994:90–96).

The concept of human development is much richer and more multifarious than what we can capture in one index of indicator. Yet HDI is useful in focusing attention on qualitative aspects of development, and may influence countries with relatively low HDI scores to examine their policies regarding nutrition, health, and education.

Weighted Indices for GNP Growth

Another reason why the growth rates of GNP can be a misleading indicator of development is because GNP growth is heavily weighted by the income shares of the rich. A given growth rate for the rich has much more impact on total growth than the same growth rate for the poor. In India, a country with moderate income

inequality, the upper 50 percent of income recipients receive about 70 percent ($350 billion) and the lower 50 percent about 25 percent ($150 billion) of the GNP of $500 billion. A growth of 10 percent ($35 billion) in income for the top-half results in 7-percent total growth, but a 10-percent income growth for the bottom-half ($15 billion) is only 3-percent aggregate growth. Yet the 10-percent growth for the lower half does far more to reduce poverty than the same growth for the upper half.

We can illustrate the superior weight of the rich in output growth two ways: (1) as just explained, the same growth for the rich as the poor has much more effect on total growth; and (2) a given dollar increase in GNP raises the income of the poor by a higher percentage than for the rich.

When GNP growth is the index of performance, it is assumed that a $35 billion additional income has the same effect on social welfare regardless of the recipients' income class. But in India, you can increase GNP by $35 billion (a 7-percent overall growth on $500 billion) either through a 10-percent growth for the top 50 percent or a 23-percent increase for the bottom 50 percent.

One alternative to this measure of GNP growth is to give equal weight to a 1-percent increase in income for any member of society. In the previous example, the 10-percent income growth for the lower 50 percent, although a smaller absolute increase, would be given greater weight than the same rate for the upper 50 percent, because the former growth affects a poorer segment of the population. Another alternative is a **poverty-weighted index** in which a higher weight is given a 1-percent income growth for low-income groups than for high-income groups.

Table 2-1 shows the difference in annual growth in welfare based on three different weighting systems: (1) GNP weights for each income quintile (top, second, third, fourth, and bottom 20 percent of the population); (2) equal weights for each quintile; and (3) poverty weights of 0.6 for the lowest 40 percent, 0.3 for the next 40 percent, and 0.1 for the top 20 percent. In Panama, Brazil, Mexico, and Venezuela, where income distribution worsened, performance is worse when measured by weighted indices than by GNP growth. In Colombia, El Salvador, Sri Lanka, and Taiwan, where income distribution improved, the weighted indices are higher than GNP growth. In Korea, the Philippines, Yugoslavia, Peru, and India, where income distribution remained largely unchanged, weighted indices do not alter GNP growth greatly (Ahluwalia and Chenery 1974:38–42).

Is poverty-weighted growth superior to GNP-weighted growth in assessing development attainment? Maximizing poverty-weighted growth may generate too little saving, as in Sri Lanka of the 1960s, as the rich have a higher propensity to save than the poor (Chapter 14).

Although the different weighting systems reflect different value premises, economists usually choose GNP weights because of convenience and easy interpretation. Given present data, it is easier to discuss poverty reduction by using both GNP per capita and income distribution data than to calculate poverty-weighted growth.

TABLE 2-1. Income Equality and Growth

		I. Income growth			II. Annual increase in welfare		
Country	Period	Upper 20 percent	Middle 40 percent	Lowest 40 percent	(A) GNP weights	(B) Equal weights	(C) Poverty weights
Korea	1964–70	10.6	7.8	9.3	9.3	9.0	9.0
Panama	1960–69	8.8	9.2	3.2	8.2	6.7	5.6
Brazil	1960–70	8.4	4.8	5.2	6.9	5.7	5.4
Mexico	1963–69	8.0	7.0	6.6	7.6	7.0	6.9
Taiwan	1953–61	4.5	9.1	12.1	6.8	9.4	10.4
Venezuela	1962–70	7.9	4.1	3.7	6.4	4.7	4.2
Colombia	1964–70	5.6	7.3	7.0	6.2	6.8	7.0
El Salvador	1961–69	4.1	10.5	5.3	6.2	7.1	6.7
Philippines	1961–71	4.9	6.4	5.0	5.4	5.5	5.4
Peru	1961–71	4.7	7.5	3.2	5.4	5.2	4.6
Sri Lanka	1963–70	3.1	6.2	8.3	5.0	6.4	7.2
Yugoslavia	1963–68	4.9	5.0	4.3	4.8	4.7	4.6
India	1954–64	5.1	3.9	3.9	4.5	4.1	4.0

Note: Equal weights imply a weight of 0.2 for the upper 20 percent, 0.4 for the middle 40 percent, and 0.4 for the lowest 40 percent, whereas poverty weights are caculated giving weights of 0.1, 0.3, and 0.6, respectively.

Source: Ahluwalia and Chenery 1974:42.i.

"Basic-Needs" Attainment

Many economists are frustrated at the limited impact economic growth has had in reducing third-world poverty. These economists think that programs to raise productivity in developing countries are not adequate unless they focus directly on meeting the basic needs of the poorest 40–50 percent of the population – the **basic-needs approach**. This direct attack is needed, it is argued, because of the continuing serious maldistribution of incomes; because consumers, lacking knowledge about health and nutrition, often make inefficient or unwise choices in this area; because public services must meet many basic needs, such as sanitation and water supplies; and because it is difficult to find investments and policies that uniformly increase the incomes of the poor.

MEASURES

The basic-needs approach shifts attention from maximizing output to minimizing poverty. The stress is not only on *how much* is being produced but also on *what* is being produced, in *what ways*, for *whom*, and *with what impact*.

Basic needs include adequate nutrition, primary education, health, sanitation, water supply, and housing. What are possible indicators of these basic needs? Two economic consultants with the World Bank identify the following as a preliminary set of indicators (Hicks and Streeten 1979:567–580):[20]

- *Food:* Calorie supply per head, or calorie supply as a percentage of requirements; protein
- *Education:* Literacy rates, primary enrollment (as a percentage of the population aged 5–14)
- *Health:* Life expectancy at birth
- *Sanitation:* Infant mortality (per thousand births), percentage of the population with access to sanitation facilities
- *Water supply:* Infant mortality (per thousand births), percentage of the population with access to potable water
- *Housing:* None (as existing measures, such as people per room, do not satisfactorily indicate the quality of housing)

Each of these indicators (such as calorie supply) should be supplemented by data on distribution by income class.

Infant mortality is a good indication of the availability of sanitation and clean water facilities, as infants are susceptible to waterborne diseases. Furthermore, data of infant mortality are generally more readily available than data on access to water.

[20] The International Fund for Agricultural Development measures basic needs through a basic needs index (BNI), which consists of an education index (adult literacy rate and primary school enrollment rate) and health index (number of physicians per head of the population, infant mortality, and access to health care, safe water, and sanitation) (Jazairy, Alamgir, and Panuccio 1992:28–29, 41–44, 392–399). The BNI especially focuses on indicators of interest to the very poor. Still, the BNI is subject to problems of scaling and weighting similar to indicators such as the PQLI and HDI.

GROWTH AND "BASIC NEEDS"

High basic-needs attainment is positively related to the rate of growth of per capita GNP, as increased life expectancy and literacy, together with reduced infant mortality, are associated with greater worker health and productivity. Furthermore, rapid output growth usually reduces poverty (Hicks 1979:985–994). Thus, GNP per head remains an important figure. But we also must look at some indicators of the composition and beneficiaries of GNP. Basic-needs data supplement GNP data but do not replace them. And, as the earlier South African example indicates, we must go beyond national averages to get basic-needs measures by income class, ethnic group, region, and other subgroups (see Chapter 6 for a discussion of inequality).

IS THE SATISFACTION OF BASIC NEEDS A HUMAN RIGHT?

The U.S. Founders, shaped by the scientific and intellectual activity of the Enlightenment, wrote in the Declaration of Independence, "We hold these truths to be self-evident, that all men are created equal; that they are endowed by their Creator with certain unalienable rights." The U.N. Universal Declaration of Human Rights goes beyond such civil and political rights as a fair trial, universal adult vote, and freedom from torture to include the rights of employment, minimum wages, collective bargaining, social security, health and medical care, free primary education, and other socioeconomic rights. In fact, for many in the third world, the fulfillment of economic needs precedes a concern with political liberties. In Africa, there is a saying, "Human rights begin with breakfast"; and a beggar in one of Bertolt Brecht's operas sings, "First we must eat, then comes morality."

Some LDCs may have to reallocate resources from consumer goods for the well-off to basic necessities for the whole population. However, even with substantial redistribution, resources are too scarce to attain these social and economic rights for the masses in most low-income countries. Consider the right of free primary education. Most low-income countries have less than one-tenth the PPP$ GNP per capita of the United States, 1.5 times the population share aged 5–15 (see Chapter 8), and greater shortages of qualified teachers, all of which means a much greater share of GNP has to be devoted to education to attain the same primary enrollment rates as in the United States. Far less income would be left over for achieving other objectives, such as adequate nutrition, housing, and sanitation. Furthermore, primary school graduates in Africa and Asia migrate to the towns, adding to the unemployed and the disaffected. A carefully selective and phased educational program, including adult literacy programs, often can be more economical, and do more for basic needs, than an immediate attempt at universal primary education.

Setting up Western labor standards and minimum wages in labor-abundant LDCs is not always sensible. With a labor force growth of 2–3 percent per year, imitating labor standards from rich countries in LDCs may create a relatively privileged, regularly employed labor force and aggravate social inequality, unemployment, and poverty. Economic rights must consider the scarcity of available resources and the necessity of choice (Streeten 1980:107–111).

Development as Freedom and Liberation

In the 1970s, some Latin American Roman Catholic radicals, French Marxists, and scholars sympathetic to China's Cultural Revolution (1966–76) rejected economic growth tied to dependence on Western-type techniques, capital, institutions, and elite consumer goods. These scholars believed that the LDCs should control their own economic and political destiny and free themselves from domination by Western capitalist countries and their elitist allies in the third world. According to them, the models for genuine development were not countries such as South Korea, Taiwan, and Brazil, but Tanzania, Cuba, and Maoist China, which stressed economic and political autonomy, the holistic development of human beings, the fulfillment of human creativity, and selfless serving of the masses rather than individual incentives and the production of material goods (Goulet 1971:6–10; Gurley 1970:26–38; and a somewhat different emphasis by Gutierrez 1973).

Since Mao Zedong's death in 1976, the Chinese government has repudiated much of the Cultural Revolution's emphasis on national self-sufficiency, noneconomic (moral) incentives, and central price fixing and is stressing household and management responsibility, limited price reform, and investment from and trade with capitalist countries. After 1982, Presidents Julius Nyerere and Ali Hassan Mwiniyi of Tanzania agreed that peasant resettlement into planned rural village communities had been spoiled by corrupt and ineffective government and party officials and the influence of rich peasants. Although Cuba, in the decade following the victory of Fidel Castro's revolution in 1959, provided economic security and met most of the basic needs of the bulk of the population, average consumption levels have been low and declining since the 1980s. Consumption standards especially fell after the Soviet Union ceased its international aid, trade subsidies, and debt writedowns just before the Soviet collapse of 1991.

The Liberationists were not really criticizing development but, rather, growth policies disguised as development. Including income distribution and local economic control in the definition of development would be a better approach than abandoning the concept of development.[21] For in the 1980s, 1990s, and first decade of the 21st century, the leaders of China, Tanzania, and Cuba seem to have replaced the language of liberation with that of development, specifically self-directed development.

"Development is based on self-reliance and is self-directed; without these characteristics there can be no genuine development.... The South cannot count on a significant improvement in the international economic environment for its development in the 1990s.... The countries of the South will have to rely increasingly on their own exertions, both individual and collective, and to reorient their development strategies, which must benefit from the lessons of past experience" (South Commission 1990:11, 79). Dragoslav Avramovic (1991: ii) argues, "Adjustment and

[21] Platteau and Gaspart (2003:1687–1703) warn that local control of community-driven development is vulnerable to capture by local elites.

development programmes should be prepared, and seen to be prepared, by national authorities of [Latin American, Asian, and] African countries rather than by foreign advisors and international organizations. Otherwise commitment will be lacking." Many nations, especially in Africa, lack experience in directing their own economic plans and technical adaptation and progress.

Self-reliance does not mean isolation from the global economy. Perhaps the most successful developing country, early modern Japan, received no foreign aid and virtually no foreign direct investment but was liberal in foreign trade and exchange and the world champion borrower of foreign technology. Japan, in the late 19th and early 20th centuries, directed its development planning, the creation of financial institutions, the officials and businesspeople sent to learn from abroad, the foreigners hired to transfer technology to government and business, the modification of foreign technology (especially in improving the engineering of traditional artisans), and the capturing of technological gains domestically from learning by doing (Nafziger 1995 – see Chapter 3). In a similar fashion, today's developing countries, when receiving funds and assistance from DCs and international agencies, should be in charge of their planning and development so that they can benefit from learning through experience.

The Nobel laureate Amartya Sen's (1999) emphasis, on broadening choice rather than freedom from external domination, has some overlap with the Liberationists'. Sen argues that freedom (not development) is the ultimate goal of economic life as well as the most efficient means of realizing general welfare. Overcoming deprivations is a central part of development. Unfreedoms include hunger, famine, ignorance, an unsustainable economic life, unemployment, barriers to economic fulfillment by women or minority communities, premature death, violation of political freedom and basic liberty, threats to the environment, and little access to health, sanitation, or clean water. Freedom of exchange, labor contract, social opportunities, and protective security are not just ends or constituent components of development but also important means to ends such as development and freedom.[22]

"The relation between incomes and achievements, between commodities and capabilities, between our economic wealth and our ability to live as we would like" may not be strong and depends on circumstances other than individual wealth (see Sen 1999:13–14, Chapter 6 of this volume on capabilities, and Chapter 7 of this volume

[22] Fogel and Engerman (1974, vol. 1, pp. 126–28) indicate that "the life expectation of U.S. slaves was . . . nearly identical with the life expectation of countries as advanced as France and Holland" and "much longer [than] life expectations [of] free industrial workers in both the United States and Europe." The Marxist economic historian Eugene D. Genovese (1974) agrees with Fogel and Engerman's views and indicates that U.S. slaves were materially better off than Russian, Hungarian, Polish, and Italian peasants during the same period and most of the population of LDCs in 1974. Furthermore, literacy, life expectancy, and infant survival were probably as high among Southern slaves as Eastern European peasants (Genovese 1974). However, after the U.S. abolished slavery in 1863, planters could not reconstruct their work gangs by offering freedmen "the incomes they had received as slaves by more than 100 percent. Even at this premium, planters found it impossible to maintain the gang system once they were deprived of the right to apply force" (Fogel and Engerman 1974: vol. 1, 237–238). Sen (1999:27–29) uses this evidence as support for the contention that the goal of development is freedom of people to decide "where to work, what to produce, what to consume and so on" (ibid., p. 27).

on entitlement). Still, democratic rights and liberties are correlated with economic and food security (see Chapter 7 of this volume on food in India and China). And low income, together with a deprivation of basic capabilities, contributes to hunger and poverty.

Small Is Beautiful

Mahatma Gandhi, nonviolent politician and leader of India's nationalist movement for 25 years before its independence in 1947, was an early advocate of small-scale development in the third world. He emphasized that harmony with nature, reduction of material wants, village economic development, handicraft production, decentralized decision making, and labor-intensive, indigenous technology were not just more efficient, but more humane. For him, humane *means* for development were as important as appropriate *ends*.[23]

Gandhi's vision has inspired many followers, including the late E. F. Schumacher, ironically an economist who was head of planning for the nationalized coal industry in Britain. His goal was to develop methods and machines cheap enough to be accessible to virtually everyone and to leave ample room for human creativity. For him, there was no place for machines that concentrate power in a few hands and contribute to soul-destroying, meaningless, monotonous work.

Schumacher believed that productive activity needs to be judged holistically, including its social, aesthetic, moral, or political meanings as well as its economic ends. The primary functions of work are to give people a chance to use their faculties, join with other people in a common task, and produce essential goods and services (Schumacher 1973).

Schumacher stressed that LDCs need techniques appropriate to their culture, abundant labor, and scarce capital and these might frequently involve simple labor-intensive production methods that have become economically unfeasible to DCs. These technologies are intermediate between Western capital-intensive processes and the LDCs' traditional instruments. Yet intermediate technology may not be suitable when (1) an industry requires virtually unalterable factor proportions; (2) modifying existing technologies is expensive; (3) capital-intensive technology reduces skilled labor requirements; and (4) factor prices are distorted (see Chapter 9).

Are Economic Growth and Development Worthwhile?

Economic development and growth have their costs and benefits.[24] Economic growth widens the range of human choice, but this may not necessarily increase happiness. Both Gandhi and Schumacher stress that happiness is dependent on the relationship between wants and resources. You may become more satisfied, not only by having

[23] The U.N. Economic and Social Commission for Asia and the Pacific (1992:1) argues that an integrated approach to development recognizes that "people are both a 'means' and an 'end' of development."

[24] Much of the material in this section is from Lewis (1955:420–435).

more wants met, but perhaps also by renouncing certain material goods.[25] Wealth may make you less happy if it increases wants more than resources. Furthermore, acquisitive and achievement-oriented societies may be more likely to give rise to individual frustration and mental anguish. Moreover, rootlessness and alienation may accompany the mobility and fluidity frequently associated with rapidly growing economies.

BENEFITS

What distinguishes people from animals is people's greater control over their environment and greater freedom of choice, not that they are happier. Control over one's environment is arguably as important a goal as happiness, and in order to achieve it, economic growth is greatly to be desired. Growth decreases famine, starvation, infant mortality, and death; gives us greater leisure; can enhance art, music, and philosophy; and gives us the resources to be humanitarian.[26] Economic growth may be especially beneficial to societies in which political aspirations exceed resources, because it may forestall what might otherwise prove to be unbearable social tension. Without growth, the desires of one group can be met only at the expense of others. Finally, economic growth can assist newly independent countries in mobilizing resources to increase national power.

COSTS

Growth has its price. One cost may be the acquisitiveness, materialism, and dissatisfaction with one's present state associated with a society's economic struggles. Second, the mobility, impersonality, and emphasis on self-reliance associated with economic growth may destabilize the extended family system, indeed the prevailing social structure. Third, economic growth, with its dependence on rationalism and the scientific method for innovation and technical change, is frequently a threat to religious and social authority. Fourth, economic growth usually requires greater job specialization, which may be accompanied by greater impersonality, more drab and monotonous tasks, more discipline, and a loss of craftsmanship. Fifth, as critics such as Herbert Marcuse (1966) charge, in an advanced industrial society, all institutions and individuals, including artists, tend to be shaped to the needs of economic growth.

Additionally, the larger organizational units concomitant with economic growth are more likely to lead to bureaucratization, impersonality, communication problems, and the use of force to keep people in line. Economic growth and the growth

[25] Still evidence in both Western and non-Western societies indicate a "positive relationship between income and SWB [subjective well-being for individuals] within countries" (Diener 1984:553), yet no evidence that people on the whole become happier as per capita income rises over time (Firebaugh 2003:221–222). "Because happiness depends on one's income relative to the income of others, . . . then happiness varies directly with one's own income and inversely with the incomes of others. A person whose income is constant will feel poorer when others' incomes rise" (ibid., p. 222).

[26] Aristotle, who lived during the fourth century B.C.E., believed that economic wealth and surplus helped enable philosophy, the arts, and virtuous activity.

of large-scale organization are associated with an increased demand for manufactured products and services and the growth of towns, which may be accompanied by rootlessness, environmental blight, and unhealthy living conditions. Even though the change in values and social structure may eventually lead to a new, dynamic equilibrium considered superior to the old static equilibrium, the transition may produce some very painful problems. Moreover, the political transformation necessary for rapid economic growth may lead to greater centralization, coercion, social disruption, and even authoritarianism.

Thus, even if a population is seriously committed to economic growth, its attainment is not likely to be pursued at all costs. All societies have to consider other goals that conflict with the maximization of economic growth. For example, because it wants its own citizens in high-level positions, a developing country may promote local control of manufacturing that reduces growth in the short run. The question is, What will be the tradeoff between the goal of rapid economic growth and such noneconomic goals as achieving an orderly and stable society, preserving traditional values and culture, and promoting political autonomy?

RISING EXPECTATIONS

Increasingly, as literacy rates rise, the previously inarticulate and unorganized masses are demanding that political elites make a serious commitment to a better way of life for all. These demands in some cases have proved embarrassing and threatening to elites, as the broad economic growth the lower classes expect requires much political and economic transformation.

In the face of increasing expectations, few societies can choose stagnation or retardation. Increasingly, the LDC poor are aware of the opulent lifestyle of rich countries and the elite. They have noticed the automobiles, houses, and dinner parties of the affluent; they have seen the way the elite escape the drudgery of backbreaking work and the uncertain existence of a life of poverty; they have been exposed to new ideas and values; and they are restless to attain a part of the wealth they observe.

So most LDC populations want economic growth, despite the costs. And LDCs also want better measures of growth and development. The central focus of this book is to discuss how LDCs can achieve and assess their development goals.

Conclusion

Economic growth is an increase in a country's per capita output. Economic development is economic growth leading to an improvement in the economic welfare of the poorest segment of the population or changes in educational level, output distribution, and economic structural change.

Although economists classify countries by income category, rankings by measures of the level of economic welfare form a continuum rather than a dichotomy.

The third world of Africa, Asia, and Latin America is very diverse, ranging from the least developed countries with a low per-capita income and little industrialization to newly industrializing countries.

The GNP of LDCs is understated relative to that of the United States because LDCs have a higher portion of output sold outside the marketplace, a smaller share of intermediate goods in their GNP, and a large percentage of labor-intensive, unstandardized goods having no impact on the exchange rate. The per-capita GNP of LDCs *relative* to the United States increases by one and one-half to more than four times when adjustments are made for purchasing power. Purchasing-power parity national income data are preferable, when available, because they are a more accurate reflection of relative welfare.

Per-capita GNP is an imperfect measure of average economic welfare in a country. For example, social indicators, such as the UNDP's HDI, suggest that Chile and Poland have done better in meeting the basic needs of the majority of its people than South Africa, which has roughly the same average income level. The GDI, which adjusts HDI for gender inequality, does better in reflecting the adverse effect of gender disparities on social progress.

Because the income shares of the rich are heavily weighted in GNP, its growth can be a misleading indicator of development. Alternative measures of growth are those giving equal weights to a 1-percent increase in income for any member of society, or those giving higher weights to a 1-percent income growth for lower income groups than for higher income groups.

Economists who emphasize basic needs stress providing food, housing, health, sanitation, water, and basic education in LDCs, especially for low-income groups. However, despite the view that these needs are rights, resources may be too limited in LDCs to guarantee their fulfillment.

Some economists wish to substitute the goal of liberation, or freedom from external economic and political control, for that of economic development, which they understand as implying economic growth dependent on Western techniques, capital, institutions, and consumer goods. However, the countries they choose as examples fall far short of the liberation they espouse.

Amartya Sen contends that freedom of choice is the ultimate goal of economic life. The relationship between incomes and achievements and between wealth and satisfaction with life may be weak, depending on factors other than income.

Is economic growth worthwhile? People increase their happiness, not only by having more wants met but also by renouncing certain material goods. However, economic growth gives us more control over our environment and greater freedom of choice. Yet the LDCs, faced with rising expectations, may not have the option of a no-growth society.

TERMS TO REVIEW

- apartheid
- Asian tigers
- basic needs approach
- comparison-resistant services
- developed countries (DCs)
- disparity reduction rate
- economic development
- economic growth
- economies in transition
- first world

- Fisher ideal index
- Gender-related Development Index (GDI)
- GDP (gross domestic product)
- GNP (or GNI)
- GNP (or GNI) per capita
- GNP (or GNI) price deflator
- high-income countries
- Human Development Index (HDI)
- indicative planning
- International Comparison Project (ICP)
- international economic order
- Laspeyres price index
- least developed countries (LLDCs)
- low-income economies
- middle-income economies
- newly industrializing countries (NICs)
- Organization of Petroleum Exporting Countries (OPEC)
- price level of GDP (*P*)
- Paasche price index
- Physical Quality of Life Index (PQLI)
- Purchasing Power Parity (PPP)
- poverty-weighted index
- real economic growth
- second world
- social democracy
- socialism
- third world
- United Nations Conference on Trade and Development (UNCTAD)
- World Trade Organization (WTO)
- world's middle class

QUESTIONS TO DISCUSS

1. Is economic growth possible without economic development? Economic development without economic growth?
2. What do you consider the most urgent goals for LDCs by 2015? Why are these goals important? What policy changes should LDCs undertake to increase the probability of attaining these goals?
3. Give an example of a LDC that you think has had an especially good (poor) development record in the past two to three decades. Why did you choose this LDC?
4. List three or four countries that have moved significantly upward or downward in the GNP per capita rankings in the last several decades. What factors have contributed to their movements?
5. How useful are generalizations about the third or developing world? Indicate ways of subclassifying the third world.
6. Discuss the price-index problem that LDCs face in measuring economic growth.
7. According to World Bank's *World Development Indicators, 2003*, Canada's 2001 GNI per capita ($21,930) was about 63 times higher than Kenya (with $350). Can we surmise that the average economic well-being in Canada was about 63 times the average economic well-being in Kenya?
8. Nigeria's 2001 GNP per capita was $290, more than one and one-half times that of neighboring Niger's $180. What other assessments of socioeconomic welfare (other than GNP per capita in U.S. dollars at the prevailing exchange rates) could be used in comparing Nigeria and Niger? What are the advantages and disadvantages of these alternative assessments?

9. Compare basic needs attainment, HDI, PQLI, and the International Comparison Project's Purchasing Power Parity to GNP per capita in U.S. dollars at existing exchange rates as measures of economic well-being.
10. In what ways are conventional basic-needs measures inadequate in assessing the material welfare of the poorest 20 percent of a developing country's population?
11. Are economic welfare and political freedom complementary or competing goals?
12. Choose a country, for example, your own or one you know well. What have been the major costs and benefits of economic growth in this country?

GUIDE TO READINGS

The World Bank, U.N. Development Program, IMF, and International Labour Organization publish annual statistical sources on LDCs and DCs. Many of the same sources are available online, sometimes in preliminary form before publication, or as a CD-ROM. I have listed some URLs that were available when I searched the Internet. URLs can change or may no longer be available. However, these listings or use of a search engine may help you locate these sources for downloading, depending on your software and hardware.

The annual *World Development Indicators* (World Bank 2003h) and its corresponding compact disk has the most detailed up-to-date economic statistics on LDCs and DCs. *World Development Report* by the World Bank (e.g., World Bank. 2003i and http://econ.worldbank.org/wdr/wdr2004/text-18786/) is not only a source for basic economic data on LDCs but also contains a discussion of current development issues. See Bhalla 2002 for criticisms of income data.

The World Bank's annual *World Bank Atlas* (e.g., World Bank (2002d) and http://nebula.worldbank.org/ Web site} has similar data in compact form. The U.N.'s annual *Human Development Report* (e.g., U.N. Development Program 2002 and http://hdr.undp.org/reports/view_reports.cfm?type=1) has basic economic and social data. In 1994, the U.N. Development Program (1994:30–31) ranked DCs by various indices of human distress; one example indicates that the homicide rate in the United States is 6 times the rate of most DCs and 12 times that of Japan.

The IMF's biannual bird's eye view of the world economy, *World Economic Outlook* (e.g., IMF 2003d and http://www.imf.org/external/pubs/ft/weo/2003/01/index.htm) includes data and prospects for both LDCs and DCs. Other yearly periodicals include the World Bank's *Global Economic Prospects and the Developing Countries* (e.g., World Bank. 2003f and http://www.worldbank.org/prospects/gep2003/full.htm) and *Global Development Finance: Financing the Poorest Countries* (e.g., World Bank 2003a and http://www.worldbank.org/prospects/gdf2003/); the U.N. Conference on Trade and Development's *Trade and Development Report* (e.g., UNCTAD 2001c and http://www.unctad.org/en/docs/c3l19a3.en.pdf) and *Least Developed Countries Report* (e.g., UNCTAD 2002b and http://www.un.org/partners/civil_society/m-ldc.htm); and the U.N.'s *World Economic Survey* by the

Department of International Economic and Social Affairs (e.g., U.N. 2001). The ILO, for example, 1998 and 2000, provides data on labor, employment, and poverty.

The U.N.'s *Human Development Report* explains the human development index (HDI) and Srinivasan 1994b; Streeten 1994:232–237; and Aturupane, Glewwe, and Isenman 1994:244–254 criticize HDI.

Srinivasan (1994a:3–27), Heston (1994:29–52), and Ruggles (1994:77–85) discuss the flaws in cross-national data used by international agencies. Usher (1968) and Kuznets (1971) have good discussions of errors in cross-national income comparisons. Sources on adjusting national product for purchasing power are Summers and Heston (1991:327–368) and Kravis (1984:1–57); Srinivasan (1994b:241) criticizes work on purchasing-power parity. Weighted indices for GNP growth are discussed in Chenery, Ahluwalia, Bell, Duloy, and Jolly (1974). Deaton (2003) critiques measurements of PPPs and suggests steps for improving their calculation.

Behrman and Srinivasan (1995a) discuss analytical tools and Deaton (1995) data and econometric tools for development analysis.

Thorp (1989:303–304) discusses Dudley Seers, and Worswick (1989:301–302) E. F. Schumacher in Eatwell, Milgate, and Newman (1989).

Chenery and Srinivasan (1988 and 1989) include essays by Amartya Sen, "The Concept of Development," vol. 1, pp. 9–26; T. N. Srinivasan, "Economic Development: Concepts and Approaches," vol. 1, pp. 1–8; and Lance Taylor and Persio Arida, "Long-Run Income Distribution," vol. 1, pp. 161–194.

Goulet (1971:6–10) discusses replacing the concept of development with that of liberation. The classic discussion of the costs and benefits of economic growth appears in the appendix of Lewis 1955:420–435. On basic needs, see Hicks (1979:985–994); Hicks and Streeten (1979:572–575); and Streeten (1980:107–111).

Reddy and Heuty (2005) evaluate the Millennium Development Goals. *Development*, 2005, 48(1) has an issue assessing development goals.

Murray Leibbrandt, James A. Levinsohn, and Justin McCrary, "Incomes in South Africa Since the Fall of Apartheid," National Bureau of Economic Research Working Paper No. W11384, 2005, show a substantial decline in real incomes in South Africa between 1995 and 2000, especially among the young and non-white. Whites benefit from skill-biased technological change and a legacy of superior investment in educational capital. Black South Africans are hurt by a slack labor market from restructuring of the economy from unskilled- to skilled-intensive production.

3 Economic Development in Historical Perspective

Scope of the Chapter

To analyze the economics of developing countries, we need some basic facts about their growth and development, including an evolutionary biological approach to development, a sketch of economic development in ancient and medieval times (pre-15th century), world leaders in GDP capita from about 1500 to the present, the origins of modern economic growth and why it was largely confined to the West before the 20th century, non-Western (Japanese, Korean-Taiwanese, Soviet, and Chinese) growth models, the range of growth in the last 100 to 150 years, a concrete illustration of the power of exponential growth in North America in the last 125 years, the modern periods of fastest growth, the economic growth of Europe and Japan after World War II, the growth of LDCs before and after World War II, and the diverse economic performance among LDCs by country and world region. Finally, the U.N. General Assembly perceives today's major international problem as the widening income gap between rich and poor countries. Has income indeed widened, and is narrowing the gap an important goal? The last section draws on earlier sections to ask whether income levels between DCs and LDCs are converging or diverging.

An Evolutionary Biological Approach to Development

Chapter 13 argues against a naïve association between climate and human achievement but supports a more sophisticated ecological explanation. The physiologist Jared Diamond (1999) stresses ecology and evolutionary biology, especially distinctive features of climate, environment, and wild plants and animals in explaining the fates of human societies and their development. Despite sub-Saharan Africa's early head start as a cradle of human evolution, Eurasia dominated Africa during the latter half of the second millennium C.E. The sub-Sahara was delayed in food production compared to Eurasia by its paucity of domesticable native animal and plant species, its smaller area suitable for indigenous food production, and its north-south axis, which retarded the spread of food production and innovations. "A wild animal, to be domesticated, must be sufficiently docile, submissive to humans, cheap to feed, and immune to diseases and must grow rapidly and breed well in captivity," characteristics of Eurasia's cows, sheep, goats, horses, and pigs, but not African wild animals, even in the period since the 15th century (ibid., p. 398). In Africa and the

Americas, as you move along a north-south axis, you traverse zones differing greatly in climate, habitat, rainfall, day length, and crop and livestock disease. Hence crops and animals acquired or domesticated in one part of Africa have difficulty moving to others. In contrast, crops and animals moved easily between Eurasian societies thousands of kilometers apart but at a similar latitude sharing similar climates and day lengths. Eurasia had the fastest migration and diffusion of technological innovations. At the other extreme, premodern Native America and Aboriginal Australia suffered from isolation from Eurasia (ibid., pp. 399–407).

These distinctive features of ecology and biology facilitated the early civilization of the Fertile Crescent (today's Syria, Iraq, Jordan, and Turkey), including the development of cities, writing, and empires, during the fourth millennium B.C.E. The Fertile Crescent enjoyed a wealth of domesticated big mammals, a plethora of large-seeded grass species suitable for domestication, a substantial percentage of annuals, a climate (mild, wet winters and long, hot, dry summers) favorable to cereals and pulses, and a wide range of altitudes and topographies supporting biodiversity and staggered harvest seasons, factors deficient in South Africa, Mesoamerica, Australia, and New Guinea. However, the Fertile Crescent, by the second or first century B.C.E. no longer possessed further compelling geographic advantages, because of the destruction of much of its resource base and the loss of a head start from domesticable wild plants and animals (ibid., pp. 134–146, 409–411).

Diamond emphasizes differences in plant and animal species available for domestication, continental isolation, continental population sizes, and diffusion and migration rates dependent on continental axes and prospects for sharing innovations across similar climates and latitudes. Modern transport and communication enable the sharing of innovations among a larger community, the Atlantic economic community, including North America and Europe. For example, Mennonites from Ukraine brought turkey red wheat to Kansas in the 1870s, the basis for varieties of hard winter wheat on the U.S. Great Plains during the 20th century. But transmitting agricultural innovation from North America and Europe to Australia and New Zealand, countries of Western origin isolated in the southern hemisphere, is limited. However, researchers can disseminate new crop varieties across semitropical or tropical zones, as the high-yielding varieties of wheat in Mexico that were adapted to Punjab regions of India and Pakistan in the 1960s.

Ancient and Medieval Economic Growth

Agnus Maddison (2001:17) uses a vast array of historical statistics to quantify real GDP per capita and its growth in the last millennium, that is, from 1000 to 1998. Real GDP per capita increased 13-fold, population 22-fold, and world GDP 300-fold during the last millennium, contrasting with the earlier millennium, 0–1000 C.E., when world population grew by only a sixth and GDP per capita made no advances.

Western Europe declined during the earlier millennium with the collapse of a cohesive large-scale polity, the Roman empire, and its replacement by a fragmented and unstable political system. Urban civilization disappeared, being replaced by

"self-sufficient, relatively isolated and ignorant rural communities where feudal lords extracted income in kind from a servile peasantry" (ibid., p. 50). By 1000, trade among Western Europe, North Africa, and Asia had virtually disappeared. Western Europe was at its lowest point for the two millennia in 1000, when average income levels were below those in China, India, and much of the rest of Asia (Maddison 2001:27–50). From the 10th century to the early 14th century when surpassed by Western Europe, China had the highest income per capita in the world, having developed gunpowder (but not modern guns), a well-developed road system, and merchants trading throughout East Asia (Maddison 2001:42, 264). China only surrendered the world's lead in GDP to the United States in the 1890s, when China had the world's largest population of 380–400 million (Maddison 1997:114, 182, 190).

The economic ascension of Western Europe began in the 11th century. Western per-capita growth was at a slow crawl of 0.14 percent yearly, tripling average real income from 1000 to 1820. Maddison (2001:28, 51) estimates that this growth was more than twice those of Asia, Latin America, Africa, and Eastern Europe for the same period. The West's superior technology included navigation, shipbuilding, food processing, banking, accountancy, foreign exchange and credit markets, diplomatic service, corporate governance, military technology, insurance, libraries, the printing press, and improvement in intellectual life and the spread of universities.

In about 1500, technological progress and capital formation quickened, with Europe encountering the Americas, opening up an enormous area, including new crops (maize, potatoes, manioc, tomatoes, chillies, peanuts, pineapples, cocoa, and tobacco) and the exchange of crops and animals among Europe, the Americas, and Asia (Maddison 2001:17–25). Asian institutions and policies, however, were weak, negatively reinforced by Western colonial and imperial exploitation, especially from the 18th century onward (Madison 2001:44).

World Leaders in GDP per capita, 1500 to the Present

In Europe, Venice played a major role in opening the Mediterranean to West European trade and developing commercial links with Northern Europe. From the 10th century, with the rise of northern and central Italian cities, through the first two-thirds of the 16th century, Italy, although not united politically until about 1870, was the richest country in the world, with an estimated GDP per capita of $1,100 (in 1990 international dollars) (Maddison 2001:264). In about 1564, the Netherlands overtook Italy, remaining the world leader until about 1836, when the United Kingdom became the leader. Around 1904, the United States replaced the United Kingdom,[1] continuing leadership through today (Sharpe 2002:22) (see Figure 3-1).

[1] Before 1800, the United States and Canada did not have good economic prospects compared to other former European colonies in the Americas. "In 1700, Mexico and [what became] the United States had very similar per capita incomes, and the sugar-producing islands of Barbados and Cuba were far richer" (World Bank 2003h:54). In 1800, Cuba and Argentina had higher average incomes than the United States. Only the United States and Canada had the laws, institutions, government, and lack of high wealth inequality facilitating the entrepreneurial ventures, physical and human capital accumulation, and rapid technological progress that spurred the industrial revolution of the 19th century (ibid.).

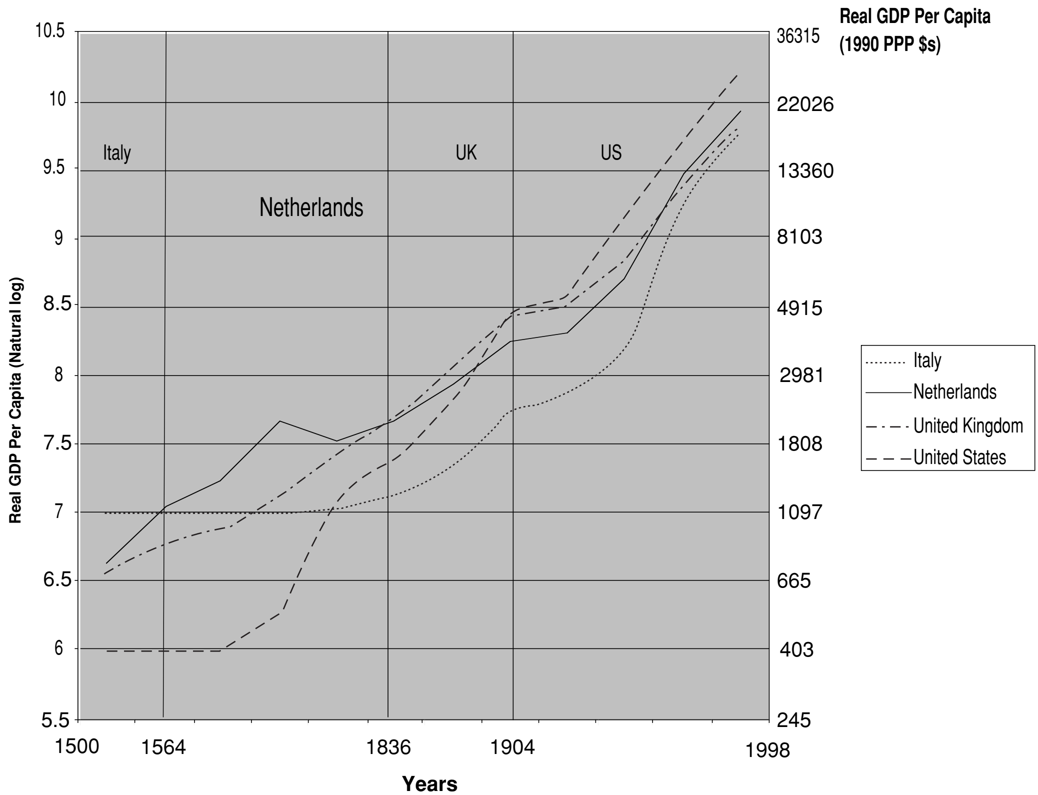


FIGURE 3-1. World Leaders in GDP per Capita, 1500–1998 (1990 $PPP) (natural log).
Source: Maddison 2002:264, 276–279. See also Sharpe 2002:23.

Beginnings of Sustained Economic Growth

Historians hesitate to name a threshold period in history when real per-capita growth took off. Although there were periods of growth before the modern period, rapid, sustained growth was rare. Living standards remained at a subsistence level for the majority of the world's population. The rapid, sustained increase in per capita GNP characteristic of **modern economic growth** began in the West (Western Europe, the United States, Canada, Australia, and New Zealand) 125 to 250 years ago. Industrialization and sustained economic growth had begun in Great Britain by the last half of the 18th century; in the United States and France in the first half of the 19th century; in Germany, the Netherlands, and Belgium by the middle of that century; and in Scandinavia, Canada, Japan (a non-Western country), Italy, and perhaps Russia, by the last half of the century.

China's average economic welfare was more or less stagnant until the second half of the 20th century. In 1870, knowledgeable economists expected that India would be more economically and financially developed than Japan by 1970 (Goldsmith 1983:4–5). India, a British colony, possessed a unified currency, rudiments of a Western-style banking system, access to the British capital market, and British industrial and financial technology, whereas Japan, just emerging from feudalism, had a

negligible modern sector, a chaotic currency, and no modern financial institutions. To be sure, from 1870 to 1913, just before World War I (1914–18), one of the more successful phases of capitalist growth, India's economy grew, albeit slowly. However, India experienced negative growth from 1914 to 1945, a period of crisis in the world economy consisting of a depression bracketed by two world wars. Japan, by contrast, had virtually the fastest growth in the world during the period 1870 to 1950, notwithstanding its massive defeat during World War II.

The rest of Asia grew modestly during the one and one-half centuries before the mid-20th century. Africa, estimated to be close to the world's average income in 0 C.E., remained the same or declined in living standards to 1820, but after that experienced modest per-capita growth until the middle of the 20th century. Latin America and Eastern Europe outpaced Asia and Africa from 1820 to 1950 (Maddison 2001:28, 126).

The West and Afro-Asia: The 19th Century and Today

Gross national income per capita for developed countries in the West in the first decade of the 21st century is roughly twelve times that of Afro-Asian low-income countries, if compared using international dollars using purchasing-power parity rates, and about 60 times that of these low-income economies in nominal U.S. dollars. The gap was not so great 130 to 140 years ago,[2] since people could not have survived on one-twelfth the per capita income of the West in the late 19th century. Nobel laureate Simon Kuznets estimates a gap of 5:1 then (Kuznets 1971:23–29). Roughly speaking, at that time the West had an average real income higher than that of Africa today. Figure 3-2 shows, using a slightly different comparison, that the international spread in GDP per capita by region, the ratio of the highest region (Western offshoots: the United States, Canada, and Australia) to the lowest region (Africa), was 5:1 in 1870, 9:1 in 1913, and 19:1 in 1998. The Western or DC economic growth has been much more rapid during the past 130–140 years, and of course the DCs are adding to an already more substantial economic base.

Capitalism and Modern Western Economic Development

Why did sustained economic growth begin in the West? A major reason is the rise of **capitalism**, the economic system dominant there since the breakup of feudalism from the 15th to the 18th centuries. The relations between private owners and workers are fundamental to capitalism. The means of production – land, mines, factories, and other forms of capital – are privately held; and legally free but capital-less workers sell their labor to employers. Under capitalism private individuals operating for profit make production decisions.

Capitalist institutions had antecedents in the ancient world, and pockets of capitalism flourished in the late medieval period. For example, a capitalist woolen industry

[2] The starting point for examining modern economic growth is often 1870 because of complete national-income data for today's DCs and a large number of LDCs since then (Pritchett 1997:4; Maddison 2001).

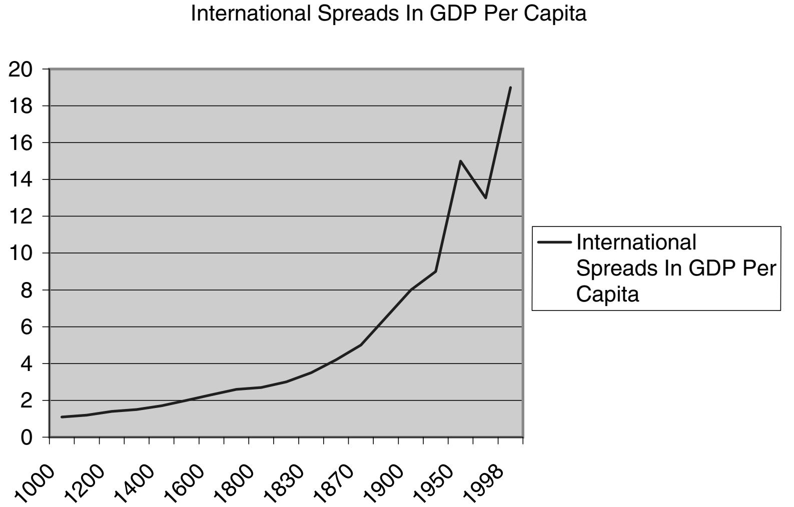


FIGURE 3-2. International Spreads in GDP per Capita (1990 $PPP), Ratio of Highest Region to Lowest Region. *Note:* The regions are Western Europe, Western offshoots, Japan, Asia (excluding Japan), Latin America, Eastern Europe and former Soviet Union, and Africa. *Source:* Maddison 2001, p. 126, whose data are for 1000, 1500, 1820, 1870, 1913, 1950, 1973, and 1998. All other years are based on linear interpolation between these eight benchmark years.

existed in 13th-century Flanders and 14th-century Florence, but it died out because of revolutionary conflict between the workers and capitalists. Thus the continuous development of the capitalist system dates only from the 16th century.

Especially after the 11th century, the growing long-distance trade between capitalist centers contributed to the collapse of the medieval economy. As European trade activity expanded during the next few centuries, certain institutions facilitated the growth of modern capitalism. Among them were private property, deposit banking, formal contracts, craft guilds, merchant associations, joint stock companies (the precursor of the corporation), insurance, international financial markets, naval protection of trade vessels, and government support in opening markets and granting monopoly privileges for inventions.

At the same time, burgeoning industrialization and urbanization further weakened the feudal economy, an agricultural system based on serfs bound to their lord's land. Ultimately these changes in trade, industry, and agriculture transformed the medieval economy into a new society fueled by capitalistic endeavors.

Before the 20th century, only capitalist economies were successful in large capital accumulation and in generating and applying a vast scientific and technical knowledge to production. Why was capitalism first successful in the West?

1. The breakdown of the authority of the medieval Roman Catholic Church, together with the Protestant Reformation of the 16th and 17th centuries, stimulated a new economic order. Although Protestantism, like Catholicism, was

ascetic, manifesting itself in the systematic regulation of the whole conduct of the Christian, the economic historian Max Weber, *The Protestant Ethic and the Spirit of Capitalism*,[3] contended that the new Protestant ethic translated its "inner-worldly" asceticism into a vigorous activity in a secular vocation, or *calling* (in contrast to the "other-worldly" asceticism of the Catholic monastery). The Protestant ethic fostered hard work, frugality, sobriety, and efficiency, virtues coinciding with the spirit essential for capitalist development. Acceptance of the Protestant idea of a calling led to the systematic organization of free labor and gave a religious justification for unstinting work even at low wages in the service of God (and incidentally the employer). Chapter 12 questions Weber's thesis, suggesting that Protestantism's secularization or accommodation may better explain any association between Protestantism and capitalism. Still most economic historians would agree that the decline of the church's all-encompassing power in political, economic, and ideological realms was necessary to free the spirit of capitalist development.

2. Between the 16th and 19th centuries, Western Europe witnessed the rise of strong national states that created the conditions essential for rapid and cumulative growth under capitalism. The nation-state established a domestic market free of trade barriers, a uniform monetary system, contract and property law, police and militia protection against internal violence, defense against external attack, and basic transportation and communication facilities – all of which fostered capitalism. Initially, absolute monarchs wrested power from feudal lords and town authorities and consolidated territory into large political and economic units – the nation-state. The nation-state was necessary for the larger markets and economies of scale of capitalist expansion. Eventually monarchy ceded power to the **bourgeoisie**, the capitalist and middle classes. Where an absolute monarch existed, the capitalist class, who enjoyed only a precarious existence under autocratic authority, ultimately stripped the monarch of power and installed representatives more favorable to their economic interests.
3. The declining influence of the church coincided with the Enlightenment, a period of great intellectual activity in 17th- and 18th-century Europe that led to the scientific discoveries of electricity, oxygen, calculus, and so on. These discoveries found practical application in agriculture, industry, trade, and transport and resulted in extended markets, increased efficiency of large-scale production, and enhanced profits associated with capital concentration. Furthermore, the rationalism permeating the new science and technology meshed with the spirit of capitalist enterprise.
4. The philosophical rationalism and humanism of the Enlightenment, coupled with Protestantism's spiritual individualism (the "priesthood of all believers"), emphasized freedom from arbitrary authority. In the economic sphere, this liberalism advocated a self-regulating market unrestricted by political intervention or state

[3] 1958; German original 1904–05.

monopoly. These views were tailor made for the bourgeoisie in its struggle to overthrow the old order.

5. Intellectual and economic changes led to political revolutions in England, Holland, and France in the 17th and 18th centuries that reduced the power of the church and landed aristocracy. The bourgeoisie took over much of this power. Economic modernization in Europe would probably not have been possible without these revolutions.[4]
6. Modern capitalism is distinguished from earlier economic systems by a prodigious rate of capital accumulation. During the early capitalism of the 16th and 17th centuries, the great flow of gold and silver from the Americas to Europe inflated prices and profits and speeded up this accumulation. Inflation redistributed income from landlords and wage laborers, whose real earnings declined, to merchants, manufacturers, and commercial farmers, who were more likely to invest in new and productive enterprises.[5]

Capitalism, as an engine for rapid economic growth, spread beyond Europe to the outposts of Western civilization – the United States, Canada, Australia, and New Zealand. Indeed, during most of the 20th century, capitalism has been more successful in the United States than in other Western economies.

However, modern industrial capitalism was established in the West at great human costs. Physical violence, brutality, and exploitation shaped its early course. In England and Belgium, wages dropped and poverty increased markedly during the accelerated industrial growth of the latter 18th and early 19th centuries. In both countries, it took a half-century before the absolute incomes of the poor reached pre–Industrial Revolution levels (Adelman and Morris 1978:245–273). Perhaps Charles Dickens best portrays the starvation, destitution, overcrowding, and death among the mid-19th century unemployed and working class. The lives fictionalized in *Nicholas Nickleby*, *A Christmas Carol*, and *Oliver Twist* were grim indeed. Dickens's novels are an accurate portrayal of not only the English working class but of other Western workers during this time.[6] Although these human costs may not be inevitable, similar problems have not been avoided by newly industrializing countries in subsequent periods. But despite these costs, even the late Marxist Maurice Dobb (1926) conceded that

[4] Although capitalism originated in the modern West, much of what contributed to its rise originated in other civilizations. For example, much of its scientific and technical content came from the Middle East and India, the philosophical from ancient Greece, and the legal and political from ancient Greece and Rome.

[5] Much of this section is from Dillard (1967:72–149); Dillard (1979:69–76); and North and Thomas (1970:1–17).

Neo-Marxists and dependency theorists (discussed in Chapter 5) argue that Western capitalism, through informal imperialism and late 19th- and early-20th-century colonialism, developed at the expense of Latin America, Asia, and Africa, capturing their **surplus** (output above wages, depreciation, and purchases from other firms) through policies controlling their raw materials, markets, international trade, and planning. Most Western mainstream economists would not add imperialism as a contributor to Western capitalist success.

[6] However, as Polak and Williamson (1993:229–230) indicate, rural poverty rates were higher than urban poverty rates in both England and France during the Industrial Revolution.

capitalism has improved the levels of living for a large proportion of the Western population since the early 19th century.

Economic Modernization in the Non-Western World

Capitalism led to modern economic growth in only a few non-Western countries. Chapter 5 discusses the relative importance of barriers to capitalism extant in traditional societies, as well as the effects of colonialism and other forms of Western political domination on the slow development of non-Western economies. Irrespective of the cause, it is clear that most non-Western countries lacked the strong indigenous capitalists and the effective bureaucratic and political leadership essential for rapid economic modernization.

THE JAPANESE DEVELOPMENT MODEL[7]

Early capitalism's fast growth. One notable exception was Japan, one of the five non-Western countries that escaped Western colonialism. Despite unequal treaties with the West from 1858 to 1899, Japan had substantial autonomy in economic affairs compared to other Afro-Asian countries.

Japan's level of economic development was much lower than that of Western countries in the middle to latter 19th century. However, since 1867, when Japan abolished feudal property relationships, its economic growth has been the most rapid in the world.

Japan's "guided capitalism" under the Meiji emperor, 1868 to 1912, relied on state initiative for large investments in **infrastructure** – telegraphs, postal service, water supply, coastal shipping, ports, harbors, bridges, lighthouses, river improvements, railways, electricity, gas, and technical research; for helping domestic business find export opportunities, exhibit products and borrow abroad, establish trading companies, and set marketing standards; for importing machines sold on lenient credit terms to private entrepreneurs; for laws encouraging freedom of enterprise and corporate organization; for organizing a banking system (with the central Bank of Japan); for sending students and government officials for training and education abroad; and (in the absence of foreign aid) for hiring thousands of foreigners to adapt and improve technology under local government or business direction.

In the late 19th century, government initiated about half the investment outside agriculture but sold most industrial properties, often at bargain prices, to private business people. Additionally government aided private industry through a low-wage labor policy, low taxes on business enterprise and high incomes, a favorable legal climate, destruction of economic barriers between fiefs, lucrative purchase contracts, tax rebates, loans, and subsidies. Japan acquired funds for industrial investment and assistance by squeezing agriculture, relying primarily on a land tax for government revenue. From the state-assisted entrepreneurs came the financial cliques or combines (**zaibatsu**) that dominated industry and banking through World War II. ***Keiretsu***, formed after World War II, refers to groups of affiliated companies loosely

[7] This section is based on Nafziger (1995) and Nafziger (1986:1–26).

organized around a large bank, or vertical production groups consisting of a core manufacturing company and its subcontractors, subsidiaries, and affiliates (Hsu 1994:198–99).

Nevertheless, unlike the contemporary Indian government, the Meiji government retained small industry, compelling the zaibatsu to provide technical advice, scarce inputs, and credit and encouraging small firms to take cooperative action. Creating small industry from scratch is not as effective as the Japanese approach of maintaining and upgrading workshop, handicraft, and cottage industry from an earlier stage of development.

Meiji Japan did not stress large leaps to the most advanced state of industrial technology available, but step-by-step improvements in technology and capital as government departments, regions, firms, and work units learned by doing. In the 1870s, this meant technical and management assistance and credit facilities to improve and increase the scale of crafts and small industry from the feudal period, causing less social disruption, as small industry's environment was not alien.

Regarding Japan's technology acquisition, Lawrence G. Franko (1983:23) contends that

> The Japanese are without doubt the world's champion importers of "other people's" technology. Unlike other industrial nations which may have forgotten how much of their technological development was in fact based on seeking out, stumbling upon, or helping themselves to foreign discoveries and innovations, Japan has continuously sent its sons to be educated abroad and then to live or travel abroad to search out ways of catching up with or surpassing the West.

The fact that today Japan probably has one of the highest mass standards for primary and secondary schools in the world, and shares underlying national values, is no accident. Japan's rulers laid the foundation in the late feudal period, when Japan's primary enrollment rate was higher than the British, and in 1872, when a national system of universal education stressing scientific and technological education was established.

Moreover from 1868 to World War II, the Japanese had a policy (first forced and later chosen) of multilateral, nondiscriminatory foreign trade outside their empire (1904–45). Unlike today's LDCs, Japan did not discriminate against exports. The increased tariff protection in the first quarter of the 20th century, which reduced the price of foreign exchange, was offset by government export promotion, which brought the exchange rate close to a market-clearing rate (see Chapter 17 on foreign exchange rates). From 1868 to 1897, the Japanese yen, on a silver standard that declined relative to gold, chronically depreciated vis-à-vis the U.S. dollar, maintaining Japan's competitiveness.

Today's international economic conditions are not so favorable to LDC export expansion. The most rapidly expanding LDC manufactured exports during the 1970s through the early 1990s were textiles, clothing, footwear, and simple consumer goods requiring widely available labor-intensive technology. But competition from other aspiring newly industrial exporting countries is more severe than it was for Meiji

Japan. Still, LDCs could benefit from the Japanese approach of using international competition and market-clearing exchange rates to spur exports.

The end of Japan's economic miracle. In 1982, University of Washington Professor Kozo Yamamura (1982:99–117) was one of the earliest economists to point out the end of Japan's "miracle," warning that Japan had exhausted its three decades of fast growth from catch-up, benefiting from internal and external economies of scale and learning by doing from rapid growth in investment and adapting advanced technology from more advanced DCs (see DC convergence later). Japan's industrial policy, spearheaded by the Ministry of International Trade and Industry, still relied on **cartels** and restrictions to limit imports even after joining the General Agreement on Tariffs and Trade (GATT), the global organization administering rules of conduct in international trade before 1995, when GATT was replaced by the World Trade Organization (WTO). The informal protection from cartels, administrative guidance, and subsidies increased domestic costs to the detriment of Japan's otherwise efficient export sectors. These high costs, together with a *keiretu*-laden banking system impaired by a 10-percent ratio of bad debts to GDP in 1990, burst the financial euphoria of the 1980s, and were followed by stagnation from 1992 to 2003 (Katz 1998; Katz 2003). Many doubt that LDCs, once having provided protection for the catch-up phase, would have the strength to counter the special interests comparable to Japan's Iron Triangle – politicians, the bureaucracy, and big business – that became more venal and incestuous beginning in the early 1970s. Japan's growth collapse in the 1990s is another reason not to blindly follow its or any other country's model of economic growth without asking how that model needs adjustment when transferred to another country and culture.

Moreover, although a contemporary LDC can learn useful lessons from the early Japanese model, these lessons are limited because of Japan's historically specific conditions and because aspects of the 1868–1937 Japanese approach also contributed to pathologies in growth, such as zaibatsu concentration, income inequality, labor union repression, militarism, and imperialism. These pathologies were not reduced until military defeat in 1945 was followed by land, educational, demilitarization, labor union, antimonopoly, monetary stabilization, constitutional, and other reforms undertaken by the U.S. occupational government, supported by the revolutionary momentum of the Japanese populace. This series of events associated with military devastation is not to be recommended or likely to accelerate economic development and democratize the political economy in LDCs as it did in Japan.

THE KOREAN–TAIWANESE MODEL

Despite Asia's financial crisis, 1997–99, the fastest growing developing countries are the **Asian tigers** or newly industrializing countries (NICs) of East and Southeast Asia – South Korea, Taiwan, and Singapore, and Hong Kong, a part of China since 1997. Both Singapore and Hong Kong have been prosperous entrepot city-states, providing trade and financial links for their hinterlands, for other parts of Asia, and between Asia and the external world. As city-states, however, they are not likely to

serve as models for more populous nation-states. Thus, we concentrate here on the two remaining Asian tigers, Taiwan and Korea, which have both enjoyed a real per capita growth rate of more than 6 percent since 1960 and graduated to high-income economies in the years since 1990.

The model of Korea and Taiwan is similar to that of Japan, perhaps unsurprisingly for two countries that were also a part of greater Chinese civilization for centuries and that were Japanese colonies from about the turn of the 20th century through World War II. Similar to Japan, the governments of Korea and Taiwan systematically intervened to further economic development, building infrastructure, providing tax incentives and subsidized credit for export manufacturing and other selected industries,[8] investing heavily in primary education and other human capital, and maintaining macroeconomic stability during external shocks (for example, from oil price increases in 1973–74 and 1979–80 and American dollar depreciation in the late 1980s), thus restraining inflation and avoiding external debt crises (World Bank 1993a; Amsden 1994:627–633; Kwon 1994:635–644; Lall 1994:645–654; Yanagihara 1994:663–670). A major difference between the two was that Korean government policies were partial to private conglomerates such as Hyundai, Lucky-Goldstar, and Daewoo, whereas Taiwan emphasized aid and the dissemination of research and technology to small-to medium-sized private and state-owned enterprises (Rodrik 2000:195–201; Noble and Ravenhill 2000:80–107).

Korea and Taiwan, also like Japan, have had a high quality of economic management provided by the civil service, with merit-based recruitment and promotion, compensation competitive with the private sector, and economic policy making largely insulated from political pressures. According to Harvard's Dani Rodrik (2000:195–201), Korea and Taiwan had been hampered by a coordination failure before the 1970s. Labor skills, technologies, and intermediate inputs or capital goods require a large-scale movement of resources to benefit from internal and external economies of scale and well-educated workers at low cost to be competitive internationally. In the 1970s, the Taiwanese and Korean states provided "big push" polices (see Chapter 5) to coordinate the mobilization of resources essential for economic transformation and a takeoff into sustained growth.

Both Asian tigers have combined creating **contested markets**, where potential competition keeps prices equal or close to average price, with business-business and government-business cooperation. In Korea, this had meant interfirm and public-private sharing of information alongside competition by a few, but usually evenly matched, firms in economic performance, especially in exports. The World Bank uses the following metaphor: Just as adults may prefer to organize party games to letting children do as they please, so running the economy as the Japanese, Koreans, and Taiwanese do as contests with substantial rewards, clear, well-enforced rules, and impartial referees (such as central banks and ministries of finance) may be preferable to **laissez-faire** (government noninterference) (World Bank 1993a:93–95).

[8] Korea also had state-owned enterprises (SOEs), whose management was autonomous from the state. For example, management decisions in Korea's first steel SOE, Pohang Iron and Steel Company, established in 1968, were more independent and less bureaucratic than in SOEs in India and Brazil (D'Costa 1999:M2–M16).

Both countries have pursued a dual-industrial strategy of protecting **import substitutes** (domestic production replacing imports) and promoting labor-intensive manufactures in exports, although since the 1960s, they have facilitated a shift in the division of labor to more capital- and technology-intensive exports (Ohno and Imaoka 1987:310–323; Bradford 1987:299–316). Yet Korea established a timetable for international competitiveness that provided performance standards for each industry assisted. Moreover, the Koreans and Taiwanese did not cling to a given nominal exchange rate in the face of continuing inflation, as many African and Latin American countries did, but depreciated their currencies when necessary. Additionally, like early-20th-century Japan, the two tigers subsidized exports to offset tariff protection. All in all, Korea and Taiwan avoided the excessive real currency appreciation of many other LDCs, so that like early Japan, they did not discriminate against exports (World Bank 1993a:21–22, 113–115).

During the first 25 years after World War II, industrialization in Korea and Taiwan benefited from United States aid, capital inflows, and rapidly growing demand for manufactured goods in Asia. Yet aid as a percentage of GDP in early post–World War II Taiwan (6 percent in 1951–61) was even lower than the same percentage in Africa recently (8 percent in 1987) (Brautigam 1994:111–138).[9] Since the 1970s, the two tigers have been closely linked economically and geographically to Japan and other high-performing Asian economies, facilitating trade and investment flows. Beginning in late 1985, when the U.S. dollar began devaluing relative to the Japanese yen, Japanese companies have tried to retain their international price competitiveness in manufacturing by organizing the **Asian borderless economy**. This Japanese-led system, which encompasses a new international division of knowledge and function, selected more sophisticated activities including research and development-intensive and technology-intensive industries for the four tigers, while assigning the less sophisticated production and assembly, which use more standardized and obsolescent technologies, to China and three members (Indonesia, Malaysia, and Thailand) of the regional economic group, the Association of South East Asian Nations (ASEAN).[10]

In both countries, government-owned and -controlled financial institutions provided cheap investment funds for the private sector. Korea and Taiwan established long-term development banks and other credit institutions to direct development, applying commercial criteria to select and monitor projects. The countries also kept interest rates low, especially for exporters, providing capital from the high-saving households (much from postal savings) to firms at subsidized rates (World Bank 1993a:16–20, 42–43, 133–134, 220–221).

The Koreans and Taiwanese, like the Japanese, borrowed substantial technology from abroad, often increasing productivity while learning to meet foreign standards for manufactured exports. The two NICs overcame imperfections in the market for knowledge through the purchase of new equipment to acquire technology,

[9] Korea probably received more aid as a proportion of GNP than Taiwan during this period. Over 80 percent of Korea's imports in the 1950s were financed by U.S. assistance (Jazairy, Alamgir, and Panuccio 1992:11).

[10] Shojiro (1992:11–37). The Asian borderless economy and product-cycle model are discussed further in Chapter 17.

information transmitted by exacting customers, technology licensing, knowledge from returning nationals educated overseas, domestic research to improve exports and reduce the costs of protection, the transfer of nonproprietary technology from engineering publications, trade literature, and independent consultants, and foreign direct investment (although, like Japan, this was restricted or closed for varying periods). This transfer was expedited by the high domestic educational investments and standards (Koreans have the longest primary and secondary school year in the world) and the large number of nationals attending universities and graduate schools. Many of these specialized in science and engineering and a substantial percentage received their higher education overseas. For example, *all* the postgraduates employed in Taiwanese industry are foreign-educated nationals (World Bank 1993a:301–302, 317–320).

In 1949–52, Korea and Taiwan, with American assistance, undertook redistribution that reduced substantially the inequality of land holdings from colonialism but also supported the former landed class in investing in trade and industry (Hamilton 1984:38–43). The two countries, similar to Meiji Japan, subordinated agriculture to industry, using a state **monopsony** (or single buyer) to keep farm prices low, transferring many of the revenues captured to aid industry. But beginning in the 1960s, as the United States reduced its subsidized Public Law 480 surplus grain sales to both countries, both countries reversed their antifarm bias, subsidizing and protecting agriculture and increasing the procurement price for grain, thus partly reducing the gap between the city and the countryside (Moore 1984:57–64). Other policies supporting agriculture were agricultural research and extension services to speed diffusion of the high-yielding varieties of grain of the **Green Revolution** and exchange rates close to market-clearing rates to spur farm exports (World Bank 1993a: 32–35).

Both countries achieved widely shared improvements in economic welfare, which brought legitimacy to government policy. These wealth-sharing programs included not only the postwar reform, which distributed land to the tiller, but also emphases on labor-intensive development (which also included small- and medium-scale industries programs in Taiwan), family-planning programs (the success of which is correlated with income egalitarianism – see Chapter 8), and public-supported mass primary education, which reached the poor, children in rural areas, and girls. In the 1950s, South Korea invested heavily in expanding primary and secondary education. By the early 1960s, the literacy rate of Korea was 80 percent, a high level for a country that was then at such a low level of development (Leipziger 1988:1–5; Kim 1988:7–18; World Bank 1993a:47, 52–53, 160).

The experiences of Korea and Taiwan since 1945 reinforce many of the lessons of the Japanese development model: the importance of guided capitalism, infrastructure investment, technological borrowing and learning, universal primary education, high educational standards, and market-clearing prices of foreign exchange. The two tigers relied on authoritarian governments and repressed labor unions, as Japan did in their early modernization, but, unlike Japan, were successful in achieving low income inequality before undertaking political democratization. Korea and Taiwan's rapid

economic growth and relative economic egalitarianism facilitated efforts in the late 1980s and 1990s to evolve toward greater democratic government.

Since the late 1980s, DCs such as the United States have begun treating Taiwan and Korea as rich countries, withdrawing preferences they received when they were developing countries and demanding that they adhere to more liberal trade and exchange-rate policies. In addition, the two countries have faced increasing pollution and congestion that have derived, in part, from their growing affluence. Yet despite problems, the two countries' economic development can provide lessons for today's low-income and lower-middle-income countries.

The World Bank's *The East Asian Miracle* (1993a) identifies eight high-performing Asian economies: in addition to Japan, these include the four tigers – Taiwan, South Korea, Hong Kong, and Singapore; and the ASEAN three – Malaysia, Thailand, and Indonesia. Indonesia, which just graduated from a low- to a middle-income country in 1995, but, as a result of the Asian crisis in the late 1990s, a severe drought, falling export prices, and civil unrest and irregular government turnover, slid back to a low-income economy at the turn of the 21st century. Although Thailand's 6.0-percent growth rate, 1980–92, was the fastest among lower-middle-income economies, the 1997–99 financial and macroeconomic crisis erased many of these earlier gains. Malaysia graduated to the upper-middle-income category in the early 1990s but did not retrogress much in the late 1990s when it avoided continuing short-term capital outflows and pressure on its ringget currency, thus resisting use of the contractionary monetary and fiscal policies that set back other Southeast Asian countries (see Chapter 16's discussion on comparative economic policies during the Asian crisis). The Asian crisis had much less adverse effect on Taiwan, with strong prudential supervision, limits on short-term capital inflows, substantial international reserves, and the funding of growth through retained earnings rather than debt, than on South Korea. Korea, by contrast, had keiretu-like corporate conglomerates, the ***chaebol***, with the interlocking and cross-subsidization of industrial enterprises and commercial banks, several of which had high rates of nonperforming loans (indeed, some were technically insolvent). Still, the Korean economy bounced back faster than Southeast Asian economies, stabilizing the economy by the end of 1998 (Noble and Ravenhill 2000:80–107).[11]

The *Economist* (1994:31–32) asks: Who are the next newly industrializing countries or NICs? Their answer: Malaysia, whose secondary schools and universities are, however, mediocre, and Thailand, whose educational system is weak in science and engineering and whose enrollment in secondary school as a percentage of children 12–17 years old was only 55 percent (World Bank 2002h:92) compared to 97 percent in South Korea in the late 1990s (World Bank 2001h:87). Moreover, as indicated in Chapter 17, Malaysia and Thailand, while enjoying limited prosperity, have paid relatively little attention to bottom-up development of indigenous technology generation

[11] Taiwan industries have more competitive pressures, less concentration, more frequent producer turnover, smaller within-industry productivity dispersion across producers, and greater market selection based on productivity differences than South Korea (Roberts, Chung, and Roberts 2003:F485–F510).

and industrial innovation, sacrificing their economic autonomy to less-sophisticated, labor-intensive, low-value-added production in the Japanese-organized division of labor. And slower growth in global income and trade during the last three decades has inhibited Malaysia and Thailand from emulating the earlier experience of the NICs.

THE RUSSIAN-SOVIET DEVELOPMENT MODEL

The Stalinist development model. The 1917 Communist revolution in Russia provided an alternative road to economic modernization, an approach usually associated with Soviet leader Joseph Stalin from 1924 to 1953. The main features of Soviet socialism, beginning with the first five-year plan in 1928, were replacing consumer preferences with planners' preferences, the Communist Party dictating these preferences to planners, state control of capital and land, collectivization of agriculture, the virtual elimination of private trade, plan fulfillment monitored by the state banks, state monopoly trading with the outside world, and (unlike the Japanese) a low ratio of foreign trade to GNP. In a few decades, the Soviet Union was quickly transformed into a major industrial power. Indeed, the share of industry in net national product (NNP) increased from 28 percent to 45 percent, and its share of the labor force from 18 percent to 29 percent, from 1928 to 1940, whereas agriculture's share in NNP declined from 49 percent to 29 percent and the labor force share dropped from 71 percent to 51 percent over the same period – an output shift that took 60–70 years, and a labor force shift that took 30–50 years in the West and Japan. Moreover a 60-percent illiteracy rate, an average life expectancy of about 40 years, and widespread poverty before the revolution gave way to universal literacy, a life expectancy of 70 years,[12] and economic security.

The Soviets diverted savings from agriculture (at great human cost, as Chapter 7 points out) to industry (especially metallurgy, engineering, and other heavy industry). They did not use a direct tax like the Japanese, but collectivized farming (1928–38), enabling the state to capture a large share of the difference between state monopsony procurement at below-market prices (sometimes below cost) and a sales price closer to market price (Gregory and Stuart 2001:72–77, 126–129; Kuznets 1963:345–347).

Russia's tsarist economic performance in the decades before 1917 is a matter of controversy. Walter W. Rostow (1971:65–67) dates Russia's takeoff into sustained growth, 1890–1914, when industrial growth was rapid, though discontinuous. Even so, growth in agriculture and other sectors lagged behind industry's. And surely the autocracy and social rigidity existing under the tsars would not have been consistent with the investment in education and capital equipment needed for economic modernization (Gregory and Stuart 2001:19–38).

Many economists and policy makers thought that Soviet-style central planning had transformed the economy from economic lethargy before the revolution to fast economic growth and improvement in material living standards during the four decades

[12] Chapter 19 discusses the reasons for Russia's fall in life expectancy from 70 years in 1978–92 to 65 years in 2001.

after 1928. The Stalinist economic model was not only emulated by Eastern European Communist governments in the Soviet sphere of influence, but also provided an inspiration (and sometimes a prototype) for many leaders in Asia, Africa, and Latin America. During the 1950s, under Chairman Mao Zedong, with centralized material-balance planning, expanded heavy industry investment, the development of communes (collective farms), and heavy dependence on Soviet aid, China emphasized the slogan, "Learn from the Soviet Union" (Riskin 1987:53–113; Wheelwright and McFarland 1970:13–65).

The Fel'dman–Stalin investment strategy. China and India used the Soviet priority on investment in the capital goods industry as the centerpiece of planning in the 1950s. One of the most creative periods for debate on investment choice was from 1924 to 1928, a time of acute capital shortage in the Soviet Union. During this period, Stalin, who was consolidating his power as successor to the revolutionary leader Vladimir Ilich Lenin as head of the Communist Party, was not so rigid in his approach to economic policy as he was after 1929. The Soviet industrialization dispute during this period anticipated many current controversies on development strategies, including those of balanced versus unbalanced growth (see Chapter 5).

The driving force in G. A. Fel'dman's unbalanced growth model, developed for the Soviet planning commission in 1928, was rapid increase in investment in machines to make machines. Long-run economic growth was a function of the fraction of investment in the capital goods industry (λ_1).

The **Feld'man model** implies not merely sacrificing current consumption for current investment but also cutting the fraction of investment in the consumer goods industry (λ_2) to attain a high λ_1. A high λ_1 sacrifices the short-run growth of consumer goods capacity to yield high long-run growth rates for capital goods capacity and consumption. A low λ_1 (or high λ_2) yields a relatively high short-term rate and relatively low long-term growth rate in consumption.

Soviet investment and growth patterns bear a close resemblance to the Fel'dman model. Between 1928 and 1937, heavy manufacturing's share of the net product of total manufacturing increased from 31 percent to 63 percent, whereas light manufacturing's share fell from 68 percent to 36 percent. During this same period, gross capital investment grew at an annual rate of 14 percent, and the ratio of gross investment to GNP doubled from 13 percent to 26 percent. However, household consumption scarcely increased (0.8 percent per year during the period), whereas the share of consumption in GNP (in 1937 prices) declined from 80 percent to 53 percent. Over the period from 1928 to the present, the Soviet Union's unbalanced approach to investment contributed not only to its greatest economic successes, rapid economic growth and industrialization – but also to its chief failure – an average consumption level lower than almost all of Western Europe.

Indian adaptation of the Soviet investment model. For India's second five-year plan (1955/56–1960/61), Jawaharlal Nehru, India's first prime minister, and Professor P. C. Mahalanobis, a statistician who headed the Indian planning commission, tried

to combine the Fel'dman-Stalin investment strategy with democratic socialism to reduce capital shortages. The Mahalanobis planning model, like that of Fel'dman, stressed expanding the investment share in steel and capital goods. Eventually, even agriculture was supposed to benefit from this emphasis, as the production of inputs, such as fertilizer and farm machinery, was to increase.

The actual investment pattern differed from the plan. Setting a fraction of investment in the capital goods industry as a target had little practical effect on investment decisions. To begin with, planning in India does not represent a binding commitment by a public department to spend funds. Moreover, it was extremely difficult to identify capital and consumer goods sectors in the industrial statistics at any reasonable level of disaggregation (or subdivision). The division between capital and consumer goods completely ignored intermediate goods, which comprise the bulk of manufacturing output in most economies. Furthermore, most industries produce at least two types of goods. For example, the automotive industry produces automobiles (consumer goods), trucks (capital goods), and replacement parts (intermediate goods). In practice, the Mahalanobis model left investment choice in a number of enterprises and industries virtually unaffected.

Additionally, new investments in heavy industry occurred more slowly than had been planned because of technical and managerial problems, and the increased output from each unit of investment was lower than expected. Yet heavy industry still had high rates of surplus capacity because of a lack of demand. Not only had planners miscalculated the demand for consumer and capital goods as a result of unreliable figures on population growth, income distribution, and demand elasticities; more fundamentally, they had failed to consider that there were not enough investors ready to buy the capital goods produced. In contrast, in the Soviet Union, where planning is comprehensive and industry is state-owned, the government provided the market for capital goods from other industries producing capital goods and armaments.

During India's second five-year plan, real GNP grew by only 3.7 percent per year compared to the 5.5-percent annual target, and the 2.5-percent annual growth rate in the early 1960s was even further below the 5.4-percent third-plan target. Slow growth in agricultural and capital goods sectors, as well as balance of payments crises from rapidly growing food and capital imports, convinced the Indian government to abandon the Mahalanobis approach by the late 1960s (Taylor 1979:119–127; Gregory and Stuart 2001:509–570; Maddison 1971:111–115; India Planning Commission 1969).

Lessons from the Soviet investment model in LDCs. The Chinese revoked their emphasis on the Soviet investment strategy in 1960, in part because the Soviet aid agency, offended by Chinese missionary activity against Soviet Premier Nikita Khrushchev's revisionist criticisms of Stalinism, ceased credits for Chinese purchases, canceled contracts for the delivery of plant and equipment, withdrew their scientists, engineers, and technicians, and took the blueprints for projects, such as the half-completed three-kilometer (two-mile) bridge in Beijing (Riskin 1987:74–76, 138–144). But Chinese officials also noted that some major weaknesses of a Soviet-type

unbalanced economy have been undue emphasis on accumulation while overlooking consumption, too much investment in heavy industry and too little in light industry and agriculture, and the consequent lopsided development of the economic structure. One of the aims of economic readjustment since 1979 has been to balance the branches of the economy that are seriously out of proportion, and reduce the overconcentration on heavy industry so that the process of production, distribution, circulation, and consumption can be speeded up to produce better economic results. To realize this change, the production of consumer goods will be given an important position. Indeed, these officials surmised that heavy-industry "construction can only be carried out after proper arrangements have been made for the people's livelihood" (Gregory and Stuart 1994:243; 2001:240–241).

Thus, past experience of unbalanced investment in the capital goods industry suggests several lessons: (1) a larger investment share in this industry is likely to increase economic growth if there is sufficient demand for capital goods; (2) the squeeze on current consumption implied by the unbalanced investment pattern may be at least as long as a generation; and (3) planners in capitalist and mixed economies have too limited a control over total investment to implement a Fel'dman investment strategy.

Perestroika and the Soviet collapse. Mikhail Gorbachev became increasingly aware that the Soviet economy, without reform, would succumb to some of the major economic weaknesses that became apparent in the 1970s and early 1980s (retrospective data indicate that **total factor productivity**, or output per combined factor inputs, fell by almost 1 percent yearly, 1971–85) (Gregory and Stuart 1994:243). The **perestroika** (economic restructuring) of Gorbachev, head of government from 1985 to 1991, recognized that the Soviets could no longer rely on major sources of past growth – substantial *increases* in **labor participation rates** (ratio of the labor force to population), rates of investment, and educational enrollment rates. Continued growth requires increased productivity per worker through agricultural decollectivization, more decentralized decision making, a reduced bureaucracy, greater management and worker rewards for increased enterprise profitability, more incentives for technological innovation, and more price reform. Yet ironically, the destruction of old institutions before replacing them with new ones contributed to rising economic distress, which contributed to the attempted coup against Gorbachev, the end of the Communist Party's monopoly, the breakup of the Soviet Union into numerous states, and the replacement of Gorbachev by Russia's President Boris Yeltsin in 1991. (Chapter 19 discusses reasons for the collapse of Russia's state socialism and problems associated with economic reform.)

CHINA'S MARKET SOCIALISM

Mao Zedong, a founding member of the Chinese Communist Party, led the guerrilla war against the Chinese Nationalist government from 1927 to victory in 1949. From 1949 to 1976, Mao, the Chair of the Communist Party, was the leader of the People's Republic of China. Mao's ideology stressed prices determined by the state, state or communal ownership of the means of production, international and regional

trade and technological self-sufficiency, noneconomic (moral) incentives, "politics" (not economics) in command, egalitarianism, socializing the population toward selflessness, continuing revolution (opposing an encrusted bureaucracy), and development of a holistic Communist person. From 1952 to 1966, pragmatists, primarily managers of state organizations and enterprises, bureaucrats, academics, managers, administrators, and party functionaries, vied with Maoists for control of economic decision-making. But during the Cultural Revolution, from 1966 to 1976, the charismatic Mao and his allies won out, purging moderates from the Central Communist Party (for example, Deng Xiaoping) to workplace committees.

After Mao's death in 1976, the Chinese, led by Deng, recognized that, despite the rapid industrial growth under Mao, imbalances remained from the Cultural Revolution, such as substantial waste in the midst of high investment, too little emphasis on consumer goods, the lack of wage incentives, insufficient technological innovation, too tight control on economic management, the taxing of enterprise profits and a full subsidy for losses, and too little international economic trade and relations. Since 1980, near the beginning of economic reform undertaken under Deng's leadership, China had the fastest growth in the world (consistent with cover table), a growth that continued, according to official figures, through 2001. To be sure, Western economists are skeptical about Chinese data. The Penn economists Robert Summers and Alan Heston indicate "that Chinese growth rates are overstated as they are heavily based on growth in physical output figures rather than deflated expenditure series" (Summers and Heston 1991:327–368, with quotation from the computer diskette that provides the expanded Penn World Table 5 version). Based on the reduction in energy use with no increased efficiency of energy conversion, and inconsistencies in industrial and agricultural production figures, between retail sales and household budgets, and between Chinese policy discussions and official growth data, Thomas G. Rawski (2001:347–354) estimates real GDP growth, 1998 to 2001, at 0.1–2.7 percent yearly rather than the official 7.7 percent. Managers and provincial officials understate capacity and overreport production to superiors to receive the greater reward received by those who meet or exceed plan fulfillment. Rawski thinks that China's "National Bureau of Statistics has run afoul of the same pressures that have caused local authorities to become 'obsessed with . . . GDP growth rates – the leading criteria for evaluating cadre performance.'" In 2000, even Premier Zhu Rongji complained that "falsification and exaggeration [of economic statistics] are rampant" (ibid.). Alwyn Young (2003:1220–1261) contends that with "minimal sleight of hand," you can transform China's growth experience from extraordinary to mundane; the systematic understatement of inflation by non-agricultural enterprise requires downward adjustment by 2.5 percent yearly, 1978–1998 (ibid., p. 1220). In addition, Maoist China's health-care system, universal albeit at a basic, minimal level, broke down, giving way to a marketized system providing excellent care for the privileged but sometimes very little for the masses. The worsening problems of Severe Acute Respiratory Syndrome (SARS) and AIDS provide evidence for the medical system's decline. Yet most economists agree that adjustments for overreporting only reduces annual real per-capita growth, 1980 to 2000, from 7.5 percent

to 6.0 percent, a figure still 4.5 percentage points higher than the world's average (Bhalla 2002:184). Thus, despite overreporting and continuing market distortions, economists believe China's growth under market reforms has been rapid but uneven.

During the early reform period, the Chinese leaders tried to improve economic management and make the planning system more flexible rather than replacing planning with the market. This was not a capitalist road, the Chinese insisted, but "socialism with Chinese characteristics." The meaning of Chinese characteristics only took shape after seven to eight years of experimentation rather than by following a grand blueprint. Reform proceeded step-by-step, through a process of trial and error but drawing on incremental changes from past experience. The Chinese explained their approach with a proverb: "Keep touching stones while walking across a river." The strategy of building incrementally on previous institutions contrasted with Russia's more abrupt changes in strategy in the early 1990s (Clarke 1991:1–14; Lichtenstein 1991:136–137; Wang 1994:14–15, 27, 113). In practice, Chinese characteristics meant large but shrinking state industrial, corporate boards limited in firing managers, party committees in private enterprises, entrepreneurs as members of the Communist Party, growing entrepreneurial activity in both private and public sectors, household management of farm plots under long-term contracts with collectives, and "massive changes in economic policy . . . dictated without consultation" (Waldron 2002).

China's GNI PPP is second in the world to the United States (World Bank 2004i:252–253), perhaps situated to become first in the 2020s.[13] For the Sinologist Nicholas Lardy (2004), however, the soft budget constraint of banks (see Chapter 19) and inability to estimate borrowers' prospective rates of return, together with the exhaustion of benefits of catch-up (notice Kozo Yamamura's point in the section on the end of Japan's economic miracle), appear likely to decelerate growth in the next decades.

Chapter 18 provides a synopsis of market socialism, arguments for and against it, and efforts at market socialism before 1979, whereas Chapter 19 examines stabilization, adjustment, reform, and privatization in China and other postsocialist economies.

LESSONS FROM NON-WESTERN MODELS

Since the collapse of Soviet communism, only a few countries, such as Cuba and North Korea, still adhere to the Russian model. But it would also be inadvisable to accept the Japanese or Korean–Taiwanese models without modification. The Meiji Japanese and pre-1980 Koreans and Taiwanese were not democratic, spent heavily on the military, and repressed labor organizations, whereas early Japan's development was highly unequal and imperialistic, and Japan and Korea both had high industrial concentration rates. Still, LDCs can selectively learn from these East Asian countries: some major ingredients of their successes included high homogenous standards

[13] I assume a 5 percent yearly overall growth for China (including Hong Kong, listed separately) and 2 percent for the United States.

(especially in science) of primary and secondary education, able government officials that planned policies to improve private-sector productivity, substantial technological borrowing and modification, exchange-rate policies that lacked discrimination against exports, and (in Japan and Taiwan) emphases on improving the skills of small- and medium-scale industrialists. As discussed in Chapter 19, China's pragmatic and gradualist approach may provide lessons for postcommunist economies.

Still, you need to be skeptical about borrowing another country's growth model, not only because of the difficulty of transferring the model to a different country and culture[14] but also because of the low correlation between rapid growth in one period and another. Indeed, there is *no* correlation between annual GDP per capita growth rates in 1950–73 and those in 1973–98 (R square = 0.189811 for the 141 countries with data from Maddison 2001:187, 196, 216, 225). The earlier discussion of Japan during the last half of the 20th century indicates that a model that works for one time period may not work for a subsequent period.

Growth in the Last 100 to 150 Years

For the last 135 to 140 years, average annual growth rates of real GNP per capita in Japan, Ireland, Norway, Finland, and Portugal have been at least 2 percent, a rate that multiplies income sevenfold in a hundred years. The United States, Canada, Sweden, and Denmark, relatively wealthy countries in 1870, have grown at almost 2 percent yearly. Of course, these growth rates, subject to price-index number and subsistence valuation problems, are subject to a margin of error. Japan's growth of 2.63 percent yearly has been the most rapid in the world (Table 3-1), doubling income in 27 years,[15] and increasing at a rate of about 13-fold per century. This long period of growth in the West and Japan is unparalleled in world history.[16] It is much more rapid than that of the developing countries, whose growth (with a few

[14] Wade (2003) discusses the study of non-repeating patterns in nature (*Li* in ancient Chinese) – "sand and wave patterns, big-cat markings, bark and leaf designs, soap and marbling swirls, crystalline and rock forms, tree branching types, and many more of nature's dynamic, sometimes enigmatic designs." Analogously, each successful development model may be nonrepeating, at least in the way it fuses components.

[15] A quick and fairly accurate method for computing doubling time is 70 divided by the percentage rate of growth. To illustrate, the Japanese growth of about 2.6 percent yearly means income doubles in 70/2.6 or about 27 years, and the Portuguese or Canadian growth of about 2 percent annually indicates doubling in close to 35 years.

[16] What explains the slower growth in the United Kingdom and the United States and Japan's accelerated growth since World War II? Japan, like some other technologically relatively backward nations, used internal and external economies, increasing returns from additional investment, and technical borrowing to come close to catching up with the United States. Also Olson (1982) argues that the growth of special interests in developed countries with long periods of stability (without invasion or upheaval), such as Britain and the United States, reduces efficiency and growth. Thus, the Allied powers' defeat and occupation of Japan in the late 1940s and 1950s abolished special interests that slowed economic growth, while encouraging the establishment of highly encompassing interests. Yet a few decades was long enough for encrusted interests to form in Japan – corrupt factions in the ruling Liberal Democratic Party, cartelized industries, banks' high debt ratios, and rigged bidding for government construction contracts – perhaps thus contributing to deceleration in Japan's growth rate since the 1970s, but especially since 1992.

TABLE 3-1. Annual Rates of Growth of Real GNP per Capita (percent), 1870–1998

	1 1870 to 1913	2 1913 to 1950	3 1950 to 1973	4 1973 to 1998	5 1870 to 1998	6 Multiplication of 1870 GNP per capita in 1998
A. Countries with GDP per capita of $725 or more, 1870 (1990 PPP$)						
Japan	1.48	0.89	8.05	2.34	2.63[a]	27.6[a]
Ireland[b]	1.70	1.40	3.04	3.97	2.29	18.2
Norway	1.30	2.13	3.19	3.02	2.21	16.4
Finland	1.44	1.91	4.25	2.03	2.19	16.0
Portugal	0.52	1.39	5.66	2.29	2.03	13.0
Canada	2.27	1.40	2.74	1.60	1.97	12.2
Spain	1.15	0.17	5.79	1.97	1.96	12.0
Italy	1.26	0.85	4.95	2.07	1.95	11.9
Sweden	1.46	2.12	3.07	1.31	1.93	11.5
United States	1.82	1.61	2.45	1.99	1.90	11.2
Denmark	1.57	1.56	3.08	1.86	1.89	11.0
France	1.45	1.12	4.05	1.61	1.84	10.4
Switzerland	1.55	2.06	3.08	0.64	1.84	10.3
Austria	1.45	0.18	4.94	2.10	1.82	10.1
Germany	1.63	0.17	5.02	1.60	1.81	9.8
Netherlands	0.9	1.07	3.45	1.76	1.57	7.4
Belgium	1.05	0.70	3.55	1.89	1.55	7.2
Czechoslovakia[c]	1.38	1.40	3.08	0.67	1.55	7.2
Argentina	2.50	0.74	2.06	0.58	1.53	7.0
United Kingdom	1.01	0.92	2.44	1.79	1.39	5.9
Australia	1.05	0.73	2.34	1.89	1.35	5.6
New Zealand	1.51	1.35	1.72	0.67	1.34	5.5
Uruguay	1.17	0.93	0.28	2.08	1.29	5.2
Hungary	1.18	0.45	3.6	0.59	1.28	5.1
Russia-USSR	1.06	1.76	3.36	−1.75	1.11	4.1
B. Countries with GDP per capita of less than $725, 1870 (1990 international $)						
Venezuela	1.55	5.30	1.55	−0.68	2.18	15.76
Mexico	2.22	0.85	3.17	1.28	1.8	9.90
Brazil	0.30	1.97	3.73	1.37	1.73	9.10
Thailand	0.39	−0.06	3.67	4.91	1.71	8.80
China	0.10	−0.62	2.86	5.39	1.70	8.70
Vietnam	0.85	−0.37	1.05	2.82	0.91	3.20
India	0.54	−0.22	1.40	2.91	0.89	3.10
Indonesia	0.75	−0.20	2.57	2.90	0.63	2.40

Notes:

[a] The multiple in the last column may be overstated. Growth rates (in the second to last column) and corresponding multiples are rough approximations (see text).

[b] British sovereignty over Ireland ended in 1937. Figures for Ireland from 1870 to 1950 are from Kuznets 1956:13.

[c] After a long struggle against their Austrian rulers, Czechoslovakia proclaimed a new republic in 1919. In 1992, the federal government was divided into two independent states, the Czech Republic and the Slovak Republic.

Source: Maddison 2001:186, 196, 216, 265.

exceptions, such as Brazil, Argentina, Uruguay, Mexico, Malaysia, Thailand, and recently-growing China) since 1870 was only a fraction of 1 percent per year.

What about the United States as a model? The United States is among the top 10 in GNP per capita growth, 1870–1998 (Table 3-1), with a growth rate just shy of 2 percent annually, and the economic leader in GDP per capita most of the time since the early 20th century (Figure 3-1).[17] Chapter 5's discussion of neoclassicism and the Washington Consensus provide insights into the model of the United States. Yet Ha-Joon Chang, in *Kicking Away the Ladder: Development Strategy in Historical Perspective* (2002), contends that rich countries such as the United States used the ladder of state intervention and protection in their own early industrialization, but "kick away the ladder" when prescribing policies for LDCs. The 19th-century United States had early universal free public education, public aid for agricultural research and extension, subsidies for the purchase of frontier homestead farms, and high tariffs for manufacturing in the nineteenth century.[18] Moreover, LDCs may hesitate to emulate the United States, lacking the welfare state, with its social safety net for the poor and unemployed, of Western Europe. Indeed, the United States has the highest human poverty index (HPI-2) among the high-income countries of Japan and the European Union's original 15, 1995–2003 (except Portugal and Greece).[19] The components of the index, different than the developing countries' HPI-1, are the percentage of the population lacking functional literacy skills, the percentage below a 1994 income poverty line of PPP$11 daily, and the probability at birth of not surviving to age 60 (U.N. Development Program 2002a:21, 160–161).

In the 19th century, Ireland suffered through a potato famine, 1845–50, and the famine, disease, widespread poverty, and emigration exemplified by Frank McCourt's autobiographical *Angela's Ashes* (1996) (albeit the early to mid-20th, not 19th, century). Indeed, the Irish island's population fell from 8.2 million in 1840 to 4.4 million in 1911 (Foster 1989:319), whereas 14 percent of the island's population emigrated in the 1880s (Fischer 2003:3). Ireland (except the North) extricated itself from British colonial rule with independence in 1921, reducing economic dependence even further with free trade and factor movement as member of the high-income European Union in 1973.

Ireland, recently labeled the Celtic tiger, is among the world's fastest growing economies since 1870 (Table 3-1), with a GNI per capita of $26,960 (PPP$30,450) in 2003 (inside front cover table). Wouldn't Ireland be a model for economies historically highly dependent on foreign economic powers? During the last quarter

[17] Depending on the measure used, Switzerland, Norway, Sweden, France, Rhode-Island-sized Luxembourg (with a population less than one-half million), or other economies may have ranked first in income per capita at one time or other during the last century.

[18] The history of tariffs and other trade barriers is, however, more complex than Chang admits, as Chapter 17 indicates.

[19] The Princeton University economist Paul Krugman contends that U.S. income inequality, the highest among these countries (World Bank 2003h:64–66), "has returned to Guilded Age levels" (Krugman 2003:5).

of the 20th century, the Irish reduced corporate profits and other tax rates, increased trade openness, removed trade barriers, attracted export-oriented foreign investment, promoted tourism, expanded the depth and efficiency of the financial system, improved administrative quality, developed further the rule of law, achieved high educational attainment from free universal secondary education, undertook structural change to cheap wage-intensive industrial exports, and increased the ratio of labor force participation to population from a rise in female labor participation and a fall in the proportion of people dependent on those of working age as the birth rate declined.[20] Ireland's relatively young and rapidly growing English-speaking workforce, with a relatively high education, was an ideal resource to be employed in information technology ranging from financial services and software development to computer-assisted call centers (for such activities as airlines and hotel reservations) for U.S. and other Western multinational corporations. These employment opportunities reversed the outward migration from earlier in the century (Honohan and Walsh 2002).

To be sure, Ireland's homogenous population of less than four million is more manageable than most Asian or African economies. Yet the Irish model for attracting trade with and investment from Western (or Japanese) companies has similarities to the Asian Tigers, Malaysia, Thailand, coastal China, and (since 1991 reforms) India.

Of course, Ireland (along with Greece, Spain, and Portugal) was helped by the **European Regional Development Fund (ERDF)**, which made contributions to reduce disparities between the EU's richest and poorest regions. Moreover, Ireland joined the euro currency bloc in 1999, which reduced the transactions costs of trade within the European Union but also imposed a straitjacket that undermined its export competitiveness during the strengthening of the euro in 2002–03. Ireland's information technology (IT) boom, with its concomitant rise in inflation and wages, proved unsustainable during the early years of the first decade of the 21st century, as multinational corporations increased their IT outsourcing to low-wage Asia (Economist 2003g:96). Although the experience of Ireland may be instructive, it should increase awareness of shifts in comparative advantage that occur with growth and wage increases in emerging economies (see Chapter 17 on the product cycle model).

The Power of Exponential Growth – The United States and Canada: The Late 19th and 20th Centuries

A real growth in GNP per capita (or productivity per person) of 2 percent yearly multiplies income sevenfold over a century and 19-fold for one and one-half centuries. We can get a better sense of what this has meant by describing the living conditions of some North American families in the late 19th century, and comparing them to late-20th-century conditions. In 1885, a family of a rural Pennsylvania mechanic and farmer, who had no horse and wagon or public transport, lived 11 kilometers

[20] Bloom and Canning (2004:19–20) attribute Ireland's rapid growth rate since the 1980s partly to reduced birth rates from the legalization of contraception in 1979.

(or seven miles) from the nearest village, built its house and dug its well by hand, made most of its own tools, raised wheat, corn, fruit, pigs, chickens, and a garden, and shot game birds, squirrels, and deer on 6.5 hectares (16 acres). The children walked eight kilometers (or five miles) to a one-room school, whereas the father walked to the nearest village to pay his taxes. They borrowed a horse to plow the field and used handmade spade, hoe, clod-breaker, and wheelbarrow, a hand-pulled sled, and hand-pushed tiller for farm work. Their house had no indoor plumbing, so water had to be pumped, carried by a bucket for use and disposal, and heated on a stove and poured in a basin for washing. Their few changes of clothes (mostly handmade except for men's suits and work clothes) lay in handmade chests or hung on wall pegs, as there were no closets. They scrubbed their clothes with a washboard, and ironed with flatirons heated on a stove. In winter, they chopped down a tree in a nearby forest, dragged it on a hand-pulled sled, chopped it into stove lengths, staked it, and carried it into the house for a wood stove, which heated one room, in which they worked, ate, cooked, and sat; the family slept in other rooms that were cold in the winter. They raised most of their food – potatoes, turnips, beets, other vegetables, and fruits – that they spent many hours preserving or kept in a root cellar over the winter. They dug dandelions, ground their roots for coffee, cooked wintercress and wild mustard greens, and made tea from the dried leaves of wild plants. The daughters stopped school after the eighth grade to reduce spending for the fees and board of the town public school. Although family members could read, they had little reading material available (Baumol, Blackman, and Wolff 1989:30–64, with Heim 1885 and the 1980 U.S. Census of Housing as sources).

Although people who lived in rural areas worked hard and faced a difficult life, their comfort probably was higher than a factory worker's family, who lacked outdoor space, healthful environment, a varied and adequate diet, and control over time and effort. Cities, with their wretched housing conditions or crowded tenements for the majority, were unsanitary, crowded places that provided no privacy and few basic amenities, and were breeding grounds for disease. Nutrition, public health, and medical care were appalling, so that epidemics of deadly diseases were common, life expectancy was only 40 years, and infant mortality was 170 per 1,000 births (Baumol et al. :30–64).

In the 1850s, a typical Atlantic coast worker's family spent 45 percent of its income, estimated at $550–600 yearly in today's dollars, on food, and 95 percent on food, clothing, and shelter, leaving little for medical care, entertainment, and so on. Travelers in North America during this time lamented the ubiquity of the one-pot stew, which was, however, an improvement over most of Western Europe during good harvests then and for centuries before. The alternative to this stew for most people was a minimal amount of nutritionally inferior foods, such as potatoes, lard, cornmeal, and salt pork, restricted by local weather conditions, crop cycles, no refrigeration, and limited transport. Housing during the mid-19th century varied from a single 3-by-3.5 meters (10-by-12-foot) room for six persons in a New York City tenement to a small house of logs or loosely boarded frame construction (usually without glass windows) for most rural people to better housing for the few in the more prosperous

towns and cities. Obviously, no homes had electricity, few had gas, fewer still had hot running water, less than 2 percent had indoor toilets and cold running water, and baths were a luxury. Furthermore, the typical workweek (six days) was 66–70 hours in 1850 and 57 hours in 1900. Vacations or retirement for the elderly was unknown, except for the very rich (ibid.).

In contrast, in the late 1970s or early 1980s, an urban middle-income family spent 25 percent of its income on food (including fresh fruits and vegetables transported across the continent year-round, freeze-dried, frozen, and canned produce, and other items packaged for safety and nutrition), and 54 percent on food, clothing, and shelter. According to the 1980 U.S. Census of Housing, only 2.2 percent of American housing units lacked complete plumbing (defined as hot and cold piped water, a flush toilet, *and* a bathtub or shower for the exclusive use of the housing unit) and only 4.5 percent were occupied by more than one person per room. And 99.9 percent of U.S. households owned an electric vacuum cleaner, toaster, radio, iron, coffeemaker, and television, 99.8 percent had electric refrigerators, and 77 percent had electric washing machines. The adult literacy rate was 99 percent (compared to 80 percent in 1870), life expectancy was 74 years, and infant mortality was 12 per 1,000. Most North Americans spent a substantial portion of their evenings, weekends, and vacations in television viewing, cultural events, sports, and other recreational and leisure activities (ibid.).

For the Japanese, the contrast from the 19th to 20th centuries is even greater than for North America. Asians, Africans, and Latin Americans aspire to at least 2-to-3 percent annual real growth, expecting this growth to affect their material levels of living as radically as it affected North Americans, Western Europeans, and Japanese in the past.

THE GOLDEN AGE OF GROWTH

The world experienced the fastest growth in the last half of the 20th century. The "golden age" was 1950–73, when world economic growth per capita reached a phenomenal 3 percent yearly (2.93 percent annually, according to Maddison 2001:126). Even the slowest growing region, Africa, grew more than 2 percent per capita yearly, a growth that, if continued, would have doubled average income every 35 years! No wonder Surendra J. Patel, a member of the secretariat of the U.N. Economic Commission for Africa, discussing the prospects of poor countries such as India in the Royal Economic Society's *Economic Journal* in 1964, expressed the view that "the countries industrialised now were not, around half-way in the nineteenth century, much richer (or even more enlightened) than most of the pre-industrial countries now or then. . . . [C]ontinuous creeping for over a hundred years . . . at this slow pace [1.8% *per capita* per year] has brought about massive economic expansion . . . A vast accumulation of technical knowledge is awaiting assimilation. . . . Planning Commissions and Agencies are being established to steer the economies towards set goals. . . . The main task before a growth-economist to-day is to elaborate the concrete technical details for attaining a high rate of economic growth – say, 5% *per capita* per year for half a century. The final solution of the economic problem then would need not

more than an adult's life-time" (Patel 1964:129–130). Sadly, for most of Africa and for India before 1991, the "solution of the economic problem" has not been much closer than in 1964.

As stated, Japan grew rapidly, 8.05 percent annually, and even Western Europe grew at 4.08 percent yearly, 1950–73 (Maddison 2001:126), a result partly of the pent-up demand for consumer and investment goods after World War II, the rehabilitation of physical capital from war damage, the restoration of near prewar levels of technology and human capital, the diversion of production from military goods to consumer goods, and the stability of the international exchange system anchored by a stable U.S. dollar. Even the United States and Canada, spared war damage, grew by 2.45 and 2.74 percent, respectively, per annum, 1950–73 (ibid., p. 186).

The period from 1973 to 1998 was slower, with the exhaustion of fast growth from war rehabilitation, scale economies, and catch up with the most advanced economy, the United States. The University of Massachusetts' James Crotty (2002:21–44) argues that orthodox economists and policy makers, with excessive faith in markets, assumed that aggregate demand growth would balance the increase in aggregate supply. Sluggish demand growth "led to a sharp rise in excess capacity in globally contested industries" (ibid., p. 26), such as automobiles, steel, and textiles. First, the slow growth of wages, employment, and labor's bargaining power stifled the growth in consumer demand. Second, high real-interest rates after 1980 by independent and inflation-obsessed central banks and (amid capital deregulation) capital flight to punish economies relying on low, expansionary interest rates contributed to heightening instability of global financial markets and an accompanying demand by investors for large risk premiums on loans. Third, new investment spending "declined because of lower profits, higher real-interest rates, increased uncertainty, sluggish demand growth, and conservative attacks against government spending" (ibid., p. 28). Fourth, fiscal policy became increasingly restrictive as conservative political forces grew more powerful, reducing stimulative government spending and tax reduction, thus creating a drag on aggregate demand. Fifth, liberalization programs imposed by the World Bank, IMF, and **Group of Seven** DCs weakened state-guided development in LDCs. Sixth, "IMF- and World Bank-mandated austerity and restructuring programs across the developing world has badly hurt global growth" (ibid.).

Still, 1973–1998 was the second best capitalist period, with world per-capita growth 1.33 percent yearly, a period of expansion of trade and capital movements.[21] Not far behind was another period of liberalization, expansion of international trade, capital movements, and migration, 1870–1913, with world per-capita growth of 1.30 percent yearly. Not surprisingly, the period of the Great Depression, bracketed by two world wars, 1913–50, experienced slower growth, 0.91 percent per annum. The

[21] Bhalla (2002) designates 1980–2000, the period of fastest globalization (expansion of trade and capital movements), as the "golden age of development" (ibid., p. 163), especially for poor people (ibid., p. 200). Since 1820, this 20-year period exhibits the sharpest decline in world poverty percentages (after adjusting data for inconsistencies between national accounts and survey data), that is, the largest (9.8 percentage points) reduction in poverty per 10 percent growth (ibid., pp. 145, 148). See Chapter 6.

initial period of capitalist development, 1820–70, when major growth was mainly confined to the West, saw average growth of only 0.53 yearly (Maddison 2001: 125–126).

Economic Growth in Europe and Japan after World War II

Europe and Japan were devastated economically during the war. In the late 1940s and early 1950s, the reorganization of the international trade and financial system coupled with U.S. technical and economic assistance (such as the Marshall Plan) provided the basis for the rapid recovery of war-torn economies, including the economic miracle in West Germany and Japan. Many expected the same jump start with capital and technological expertise to create similar economic miracles in underdeveloped countries. But this did not occur. Countries with cultures vastly different from those of the West, with undeveloped industrial complexes, low literacy, and few technical skills, were simply not able to use the capital fully.

It became obvious that the remarkable growth in Germany and Japan occurred because technical knowledge and human capital were still intact, even though factories, railroads, bridges, harbors, and other physical capital lay in ruins. Starting growth in an underdeveloped economy was far different from rebuilding a war-torn economy.

With this awareness, scholars began thinking seriously in the 1950s about the economic development of Asia, Africa, and Latin America as a field of inquiry separate from the economics of the West. By the last part of the decade, several courses on the economic development of underdeveloped countries were introduced into U.S. universities.

Recent Economic Growth in Developing Countries

Economic growth in developing countries was much more rapid after World War II than before. Data before this war are generally poor or lacking altogether. From the start of the 20th century until independence in 1947, real growth in India, the LDC with the best estimates, was no more than 0.2 percent per year, compared to an annual 1.9-percent growth from 1950 to 1992. World Bank studies and Maddison (2001:264) indicate real growth rates for developing countries as a whole from 1870 to 1950 to be less than 1 percent a year compared to growth from 1950 to 1998 of about 2.7 percent per year and a doubling time of 26 years.

This rate has been more rapid than earlier predictions and targets; at least, this is true of growth in the 1960s and early 1970s. Forecasts in the 1960s by three prominent economists, Paul Rosenstein-Rodan, Hollis Chenery, and Alan Strout, underestimated the growth of LDCs in the 1960s and 1970s. Furthermore, growth in the GNP of developing countries during the United Nations' first development decade of the 1960s exceeded the target (Morawetz 1977:16–22; Rosenstein-Rodan 1961:107–138; Chenery and Strout 1966:679–733).

The annual growth rate of 2.7 percent was faster than the median long-term growth (1.9 percent yearly) since 1870 for the 20 developed countries in Table 3-1, Part A.[22] Yet this comparatively favorable record does not satisfy developing countries. Many of them made systematic planning efforts to condense into a few decades development that took the West more than a century. Furthermore, annual growth from 1973 to 1998 was the same as annual growth from 1950 to 1998, only because of Asia's accelerated growth since 1973. Growths in both Africa and Latin America plummeted substantially from 1950–73 to 1973–98, adding to discontent in these regions (Maddison 2001:265).

RAPID AND SLOW GROWERS

The five billion people in the developing countries experienced a wide diversity of economic performance during the late 20th century. About 12 developing countries, with 35 percent of LDC population in 1998 (1.8 billion), grew at an average annual rate of 2.5 percent or more from 1950 to 1998 (Table 3-2), a rate that increased GNP per capita more than threefold during the 48 years.

More than 70 percent of the population of fast growers lives in China, which, despite incentives for provincial officials to overstate economic performance, still had fast growth under socialism, and even faster growth during market reforms after 1978. Other fast growers included the high-performing Asian economies discussed earlier, South Korea, Taiwan, Thailand, Malaysia, and Indonesia (the other three high performers – Japan, Singapore, and Hong Kong – are high-income economies).

It is crucial to sustain these fast growth rates over a long period. Lant Pritchett (1997:13) indicates that an explosive growth in per capita GDP at a rate of 4.2 percent yearly (six countries in Table 3.2 plus DCs Japan, Singapore, and Hong Kong for 50 years) would enable a country to go from the lowest in the world in 1870 to the U.S. level in 1960.

Brazil, despite an annual inflation rate of 215 percent, 1960–2002 (Table 14-4), and a debt overhang during the 1980s and 1990s that slowed import and overall growth, experienced fast growth. Another Latin American country, Mexico, becoming increasingly integrated within the high-income North American economy, was a rapid, albeit erratic, grower. Portugal, Greece, and Turkey gained from increasing integration into an affluent Europe.

Argentina's growth was slower than that of Brazil or Mexico. In 1900, Argentina's GDP per capita of $2,756 (in 1990PPP), the same as Canada's (Maddison 1995:193–206), ranked 13th in the world, was more than double that of Japan, and was substantially higher than Italy and the Nordic countries. By 2001–03, however, Argentina defaulted on external debt amid a plummeting currency and some previously middle-class families were foraging in garbage cans for food. By then, the country had even fallen from its ranking of 31st in gross product per capita in 2001 (inside front cover table and sources cited therein). A major factor in Argentina's fall in rankings was the erosion of the rule of law in the 1930s, with a military coup and electoral fraud

[22] The first 17 listed plus the United Kingdom, Australia, and New Zealand.

TABLE 3-2. GDP per Capita (1990 $PPP) and Its Annual Growth Rate, Developing Countries, 1950–98

Country	Population 2002 (millions)[a,b]	GDP per capita: 1990 P$ 1950	1990 P$ 1998	Annual growth rate 1950–98 (percent)
Fifteen most populous countries				
China	1280.7	439	3117	6.1
India	1049.5	619	1746	1.8
Indonesia	217.0	840	3070	2.7
Brazil	173.8	1672	5459	2.3
Russian Federation	143.5	2834	3893	0.4
Pakistan	143.5	643	1935	2.0
Bangladesh	133.6	540	813	0.5
Nigeria	129.9	753	1232	0.6
Mexico	101.7	2365	6655	1.8
Philippines	80.0	1070	2268	1.1
Vietnam	79.7	658	1677	1.5
Egypt	71.2	718	2128	2.0
Ethiopia (and Eritrea)	67.7	250	399	0.6
Turkey	67.3	1818	6552	2.6
Iran, Islamic Rep.	65.6	1720	4265	1.5
Fifteen fastest growing countries[a]				
Taiwan	22.5	936	15,012	15.0
Korea, Rep	48.4	770	12,152	14.8
Thailand	62.6	817	6205	6.6
China	1280.7	439	3117	6.1
Portugal	10.4	2069	12,929	5.2
Greece	11.0	1915	11,268	4.9
Malaysia	20.4	1559	71000	3.6
Tunisia	9.8	1115	4190	2.8
Saudi Arabia	24.0	2231	8225	2.7
Indonesia	217.0	840	3070	2.7
Turkey	67.3	1818	6552	2.6
Brazil	173.8	1672	5459	2.3
Pakistan	143.5	643	1935	2.0
Mexico	101.7	2365	6655	1.8
Poland	38.6	2447	6688	1.7
Fifteen slowest growing countries[b]				
Congo (DRC)	55.2	497	220	−0.6
Cuba	11.3	3390	2164	−0.4
Madagascar	16.9	951	690	−0.3
Niger	11.6	813	532	−0.3
Mozambique	19.6	1133	1187	0.0
Zambia	10.0	661	674	0.0
Sudan	32.6	821	880	0.1

(continued)

TABLE 3-2 *(continued)*

Country	Population 2002 (millions)[a,b]	GDP per capita: 1990 P$ 1950	GDP per capita: 1990 P$ 1998	GDP per capita: Annual growth rate 1950–98 (percent)
Ghana	20.2	1122	1244	0.1
Uganda	24.7	687	725	0.1
Côte d'Ivoire	16.8	1014	1373	0.4
Tanzania	37.2	377	553	0.5
Ethiopia (and Eritrea)	99.2	250	399	0.6
Peru	26.7	2263	3666	0.6
Kenya	31.1	541	850	0.6
Mali	11.3	457	783	0.7

[a] Countries with populations below 8 million include Mauritius, with 1.2 million, a GDP per capita of PPP$2,491 in 1950 and PPP$9,853 in 1998, and an annual growth rate of 3.0 percent; Lesotho, with 2.2 million, a GDP per capita of PPP$320 in 1950 and of PPP$1,173 in 1998, and an annual growth rate of 2.7 percent; and Bulgaria, with 7.8 million, a GDP per capita of PPP$1,651 in 1950 and of PPP$4,586 in 1998, and an annual growth rate of 1.8 percent.

[b] Countries with populations below 10 million include Haiti, with 7.1 million, a GDP per capita of PPP$1,051 in 1950 and of PPP$816 in 1998, and an annual growth rate of −0.2 percent; Somalia, with 7.8 million, a GDP per capita of PPP$1,057 in 1950 and of PPP$883 in 1998, and an annual growth rate of −0.2 percent; Central African Republic, with 3.6 million, a GDP per capita of PPP$771 in 1950 and of PPP$653 in 1998, and an annual growth rate of −0.2; Sierra Leone, with 5.6 million, a GDP per capita of PPP$656 in 1950 and of PPP$558 in 1998, and an annual growth rate of −0.1; Nicaragua, with 5.4 million, a GDP per capita of PPP$1,616 in 1950 and of PPP$1,451 in 1998, and an annual growth rate of −0.1; Chad, with 9.0 million, a GDP per capita of PPP$475 in 1950 and of PPP$471 in 1998, and an annual growth rate of 0.0 percent; Senegal, with 9.9 million, a GDP per capita of PPP$1,259 in 1950 and of PPP$1,302 in 1998, and an annual growth rate of 0.0 percent; Togo, with 5.3 million, a GDP per capita of PPP$574 in 1950 and of PPP$644 in 1998, and an annual growth rate of 0.1 percent; Benin, with 6.6 million, a GDP per capita of PPP$1,084 in 1950 and of PPP$1,257 in 1998, and an annual growth rate of 0.2 percent; Burundi, with 6.7 million, a GDP per capita of PPP$327 in 1950 and of PPP$543 in 1998, and an annual growth rate of 0.7 percent; Mauritania, with 2.6 million, a GDP per capita of PPP$457 in 1950 and of PPP$783 in 1998, and an annual growth rate of 0.7 percent; and Burkina Faso, with 12.6 million, a GDP per capita of PPP$385 in 1950 and of PPP$676 in 1998, and an annual growth rate of 0.8 percent.

Sources: Population Reference Bureau 2002; Maddison 2001:185–186, 195–196, 215–217, 224–225.

in the 1930s, a military coup in 1943, and the subsequent populist rise to power of Juan Peron in 1947, with his assault on property rights of landowners in the fertile Pampas (Alston and Gallo 2003).

Greece and its neighboring rival Bulgaria, socialist until 1989, both achieved rapid growth, especially during the Golden Age. Poland also grew fast during the Golden Age. Despite slow growth during the 1970s and 1980s and reduced GDP in the early transitional period, Poland was the fastest growing transitional economy after 1989, being the first to achieve 1989 GDP levels in the mid-1990s. Poland avoided the severe economic collapse that other Eastern European countries suffered when regional trade patterns were curtailed during the early 1990s.

Other top performers were Saudi Arabia, the world's largest petroleum exporter; Tunisia, whose exports to Arab oil producers grew rapidly; Pakistan, which industrialized rapidly from a low base at independence and the partition of the Indian subcontinent in 1947; Mauritius, Africa's fastest growing economy, especially in manufacturing; and Lesotho, an enclave within South Africa, whose exports to and workers' remittances from the country grew rapidly.

By contrast, 42 of the less-developed countries, primarily from Africa, with 13 percent of the LDC population (0.7 billion) grew by no more than 1 percent per year, 1950–98.

The contrast is instructive between Thailand and the Philippines, presently members of the **Association of South-East Asian Nations (ASEAN)** and both with a population of 41 million and a GNP per capita of $310–330 in 1968 (in 1968 U.S. dollars) (World Bank 1970d). However, there was a considerable discrepancy between the income distribution in the two countries during the late 1960s and 1970s. The top 10 percent of the population in the Philippines was significantly richer than the same group in Thailand, but the bottom 20 percent was more than twice as well off in Thailand. One indicator of the greater egalitarianism in Thailand was its superior progress in rural electrification, especially among the poor, to that in the Philippines. Furthermore, from 1968 to 2000, the annual real growth per capita was 3.63 percent for Thailand (more than threefold increase for the period) compared to 1.67 percent for the Philippines (less than a twofold increase) (World Bank 1994h:210–211; Barro 2001:31).

There are several reasons for the better economic performance of Thailand, despite the beginning of the 1997–99 Asian financial crisis with the depreciation of the Thai bhat by more than 50 percent from mid-1997 to early 1998. In contrast to the Philippines, Thai banks have been more likely to be privately owned and to exercise independent authority over lending. Moreover, in its credit policies, the government of Thailand targeted small- and medium-scale agriculture and industry, unlike the Philippines, which was more oriented toward large enterprises.

Since World War II, Thailand has had lower import barriers than the Philippines, even during Thailand's emphasis on import-substitution industry during the 1970s. Thailand stressed exports of natural resources in the 1960s, shifting in the 1980s to exports of labor-intensive manufacturing and assembly, much of which was a part of the Japanese-directed borderless economy. In the 1990s, Thailand attracted a larger share of foreign investment in capital- and knowledge-intensive export sectors. Because of corruption, trade and exchange-rate restrictions, and political instability, the Philippines attracted much less investment than Thailand.

Thailand had greater success than the Philippines avoiding inflation during the oil price increases in 1973–74 and 1979–81, using macroeconomic policies to restrict spending in contrast to large budget deficits and monetary expansion in the Philippines. Furthermore, a real devaluation of the Thai bhat, 1984–88, together with Japanese and Taiwanese investment in labor-intensive manufacturing, spurred exports, while helping the country avoiding both international and domestic imbalances during the late 1980s and early 1990s. In comparison, the Philippines'

currency appreciated in real terms as the currency remained fixed in the face of inflation faster than the rest of the world (World Bank 1993a).

Thailand's population in 2002 was 62.6 million compared to the Philippines' 80.0 million. Indeed Thailand experienced a marked decline in crude birth rate from 1970, when the rate was slightly higher than that of the Philippines, to 2002, when the birth rate was 1.4 percent of the population in Thailand compared to 2.8 percent in the Philippines. Moreover, Thailand's fall in fertility reduced the percentage of children aged less than 15 years to 24 percent of the population, whereas the Philippines' percentage remained high at 37 percent (Population Reference Bureau 2002), thus increasing the share of spending on food, health, and education for the dependent population. The fact that the poorest segment of the Thai population was substantially better off than the Filipino population helps explain why Thailand's fertility rate is lower than the Philippines. More people had reached a socioeconomic level in Thailand that promoted birth control (see Chapter 8). A further benefit from Thailand's rapid fertility decline was the deceleration in annual labor-force growth, from 2.8 percent (1970–80) to 2.2 percent (1980–92) to 1.5 percent (1992–2000), whereas the Philippines annual growth remained virtually static, with 2.4 percent, 1970–80; 2.5 percent, 1980–92; and 2.3 percent, 1992–2000 (World Bank 1994h:210–211; International Labour Organization 2000:278).[23]

REGIONS OF THE WORLD

Africa's real GDP per capita was higher than that of developing (not including Japan) Asia in 1950, 1960, and 1973 (double Asia's in 1960). By 2001, however, Asia had more than twice the GDP per capita of Africa (Maddison 2001:126; Bhalla 2002:190; and inside front cover table).

Since 1973, with the slowdown of the world economy after the collapse of the post-1945 **Bretton Woods international monetary system** of fixed exchange rates and the increased prices of oil and other raw materials in the early 1970s, Africa and several other regions have experienced slow growth. Africa, Latin America, and the Middle East have suffered mutually reinforcing negative growth and severe debt crises since 1980. Thus, annual growth from 1973 to 1998 was 0.01 percent for Africa (consistent with the World Bank 2000a:1, indicated in the first section of Chapter 2), 0.34 percent for the Middle East (West Asia and North Africa), a beneficiary of the oil boom but vulnerable to subsequent oil busts, and 0.99 percent for Latin America. Despite its financial crisis, Asia continued its high performance from the Golden Age, 3.26 percent yearly. Asia includes fast-growing China, other East Asia, and South Asia but not West and Central Asia or DCs' Japan and Singapore.

Overall, Africa grew only 0.99 percent annually from 1950 to 1998, Latin America 1.72 percent annually, the Middle East 2.26 percent annually, and Asia 3.50 percent

[23] The Philippines, with comparable life expectancy and adult literacy rate and higher combined school enrollment rate, is not as far behind Thailand in HDI as in GDP per capita (U.N. Development Program 2003:61, 238).

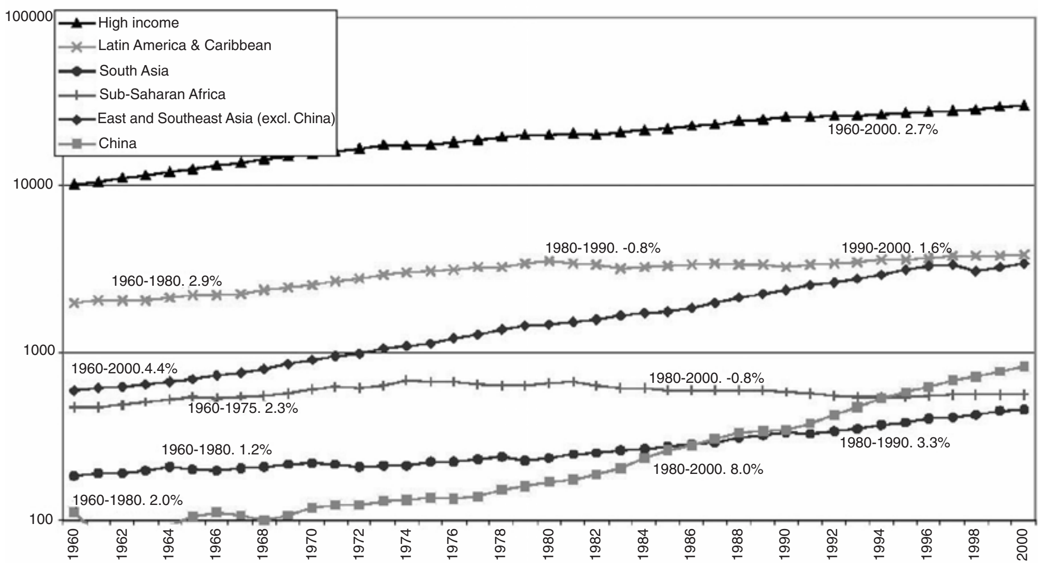


FIGURE 3-3. GDP per Capita by Country Groupings (1995 US$). *Source:* Rodrik 2004:38, Figure 1.

annually. Developing Europe and Central Asia (primarily former communist countries of East Central Europe and the Soviet Union) averaged a decline of 1.10 percent annually from 1973 to 1999, so that its overall growth from 1950 to 1998 was only 1.07 percent yearly. Because of earlier development, Latin America has the highest 2003 GNP per capita of regions in Africa, Asia, and Latin America, PPP$7,080, compared to the Middle East's PPP$5,700, East Asia's PPP$4,580, South Asia's PPP$2,660, and sub-Saharan Africa's PPP$1,770 (inside front cover table).

Figure 3-3, which plots the growth experience of country groupings, reinforces the inside cover table. Sub-Saharan Africa hardly grew at all since 1960, with a decline in GDP per capita of almost 1 percent yearly from 1980 to 2000. China, which was very poor on the eve of its civil war and even during most of the early Maoist period (1949–70), grew rapidly in the late Maoist period and the post-Maoist reform period after 1979, surpassing Africa late in the 20th century. South Asia has grown faster than Africa, especially during the period of India's modest liberalization in the 1980s and major reforms in the 1990s. Is South Asia poorer than sub-Saharan Africa, as Figure 3-3 indicates? Many economists disagree (World Bank 2003h:16; Bhalla 2002); regardless, at recent rates, South Asia's GDP per capita will soon exceed that of sub-Saharan Africa.

Among LDC regions, Latin America and the Caribbean had the highest GDP per capita in 1960. However, growth shown in Figure 3-3 indicates that as a result of its high performance, East Asia's average income is close to that of Latin America.

High-income countries' growth, 1960–2000, exceeded all LDC regions except East Asia (including China). Note, however, the discussion in the next section concerning selection bias.

The Convergence Controversy

In 1969, a commission on international development chaired by Lester Pearson (former Canadian prime minister) contended that "the widening gap between the developed and developing countries" is one of the central issues of our time (Pearson et al. 1969:1).[24] Are rich countries getting richer and poor countries poorer? One measure, real per-capita income, indicates that since World War II both developed and developing countries are better off. Is the gap widening? The answer is complex, as it depends on the definition of the gap, the time period used, how we define a rich country and a poor one, whether we use countries or individuals as the unit, and whether or not we view a country at the beginning or the end of the time period.

A key question is whether poor countries grow faster than rich ones, so that income per capita is **converging**. Convergence concurs with the predominant neoclassical growth model (discussed in Chapter 5), which presumes diminishing returns to capital as an economy develops, and similar technology from one economy to another. Robert J. Barro and Xavier Sala-i-Martin (1992:223–251) show that in the United States, low-income states have narrowed the relative economic gap vis-à-vis high-income states from 1840 to 1988. Does this finding apply to countries? William J. Baumol's answer (1986:1072–1085) is "yes," arguing that growth among 16 DCs converged from 1870 to 1970. However, Baumol demonstrates selection bias, by choosing, after the fact, a sample of countries that have successfully developed and are now among the richest countries in the world. He could have avoided selection bias if he had tested convergence, as other scholars did, by examining the subsequent growth rates of the richest countries in 1870 (de Long 1988:1138–1154; see also Maddison 1995:45 and Abramovitz 1986:394).[25]

[24] The World Bank (2001h:51) finds that "Widening gaps between rich and poor countries account for much of the increase in worldwide income inequality across individuals over the past 40 years."

[25] Even so, Baumol would not have found convergence if he had compared the United States to other Western countries from 1870 through the immediate period after World War II. As Abramovitz 1986:391–397 points out, the United States widened its lead because: (1) of its rapid advance in general and technical education, (2) technological change during that period was heavily scale dependent but biased in labor-saving but capital- and resource-saving directions, where America enjoyed great advantages, and (3) World Wars I and II were serious setbacks for Europe but stimuli to growth in the United States. Convergence occurred after 1950 (Maddison 1995:45).

The World Bank (1990i:10), in asserting that the performance of LDCs diverged in the 1980s, is also guilty of selection bias. After the fact, fast-growing countries tend to have higher per-capita incomes than slow-growing countries, just as fast-growing teenagers are generally taller than slow-growing teens.

In a similar vein, Pritchett (1997:4–6) finds convergence among the 17 contemporary high-income countries. The poorest five countries in 1870 (Japan, Finland, Norway, Canada, and Sweden, in ascending order) had five of the six fastest growth rates, 1870–1960. (Switzerland was one of the six fastest growers, whereas Italy, with the fourth to last GDP per capita in 1870, was not one of the six.) The richest five countries in 1870 (Australia, Great Britain, New Zealand, Belgium, and the

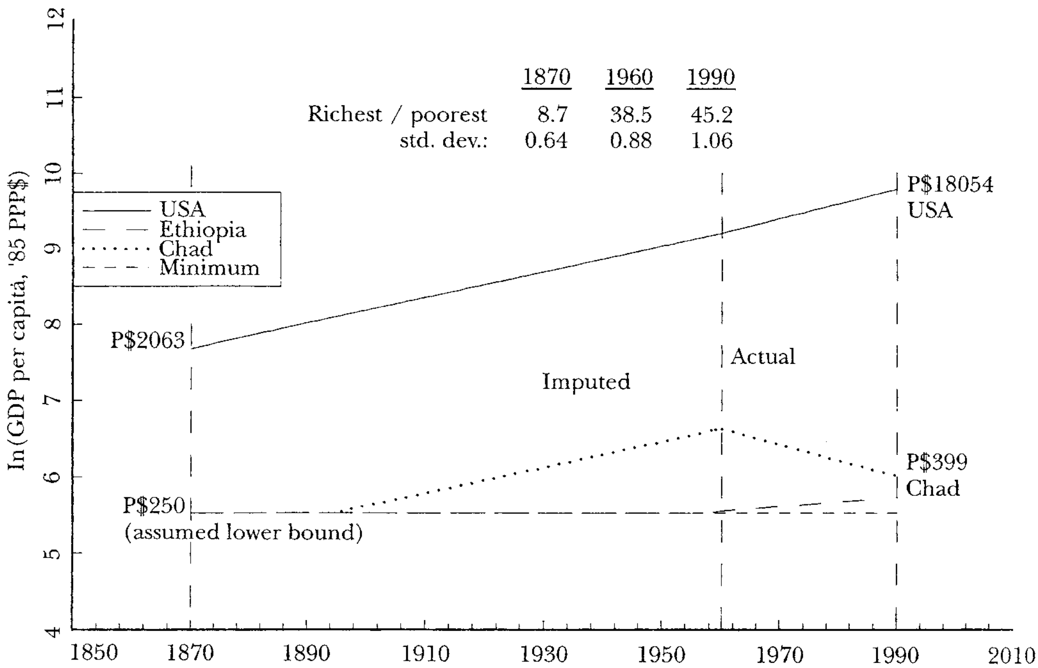


FIGURE 3-4. Simulation of Divergence of per Capita GNP, 1870–1995 (showing only selected countries). *Note:* Although the graph compares the poorest country to the United States, the richest/poorest ratio refers to Australia as the richest country in 1870.
Source: Pritchett 1997:10.

Recall our discussion of the widening gap (or spreads) between the West and Afro-Asia earlier in this chapter. For Lant Pritchett (1997:9–12), contemporary estimates of relative national incomes; the estimates of DCs' growth rate, 1870–1990; and the assumption that PPP$250 in 1985 is the lower bound for subsistence income lead to the inescapable conclusion that the last 150 years has seen "**divergence**, big time." This means that, similar to Figure 3-2 on regional spreads, Figure 3-4 also indicates a widening relative gap but between GDP per capita of the richest country vis-à-vis that of the poorest country. According to Pritchett (1997:1), "Divergence in relative productivity levels and living standards is the dominant feature of modern economic history."

What if we start convergence comparisons during the late 20th century, when most LDCs had attained independence and began systematic efforts to accelerate growth? Paul Romer (1994b:3–22) shows that from 1960 to 1985 poor countries grew at about the same rate as rich countries, so that income per capita of the developed countries was neither growing faster than (diverging with) nor growing slower than (converging with) income per capita of the developing countries. Figure 3-5 shows that from 1980 to 2000 country averages diverge. However, Figure 3-6, which

Netherlands) had the five slowest growth rates, 1870–1960. Pritchett (1997:6), similar to de Long (1988), recognizes that this convergence "is almost tautological."

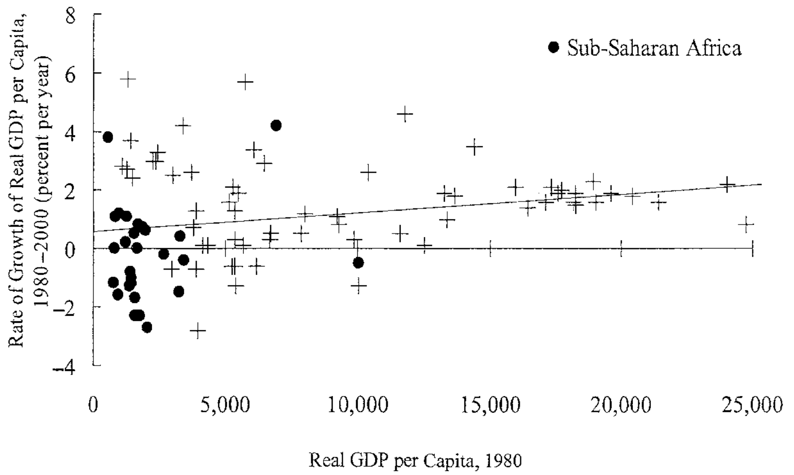


FIGURE 3-5. Average Annual Growth (1980–2000) on Initial Level of Real GDP per Capita. *Note:* The data are values for real GDP in U.S. dollars per equivalent adult. *Source:* Fischer 2003:11.

graphs the same raw data using population weights, shows convergence between rich and poor *individuals* (Bhalla 2003:205). China and India were both low-income economies at the beginning of the period. The dominance of these two fast-growing countries, which represent more than one-third of the world's population, drives the finding of convergence.

Figure 1-1 shows that incomes of the United States relative to the developing world fell from 1960 to 2000. From 1960 to 2000, U.S. median (50th percentile) income fell relative to the median in East Asia, South Asia, and the developing world generally.

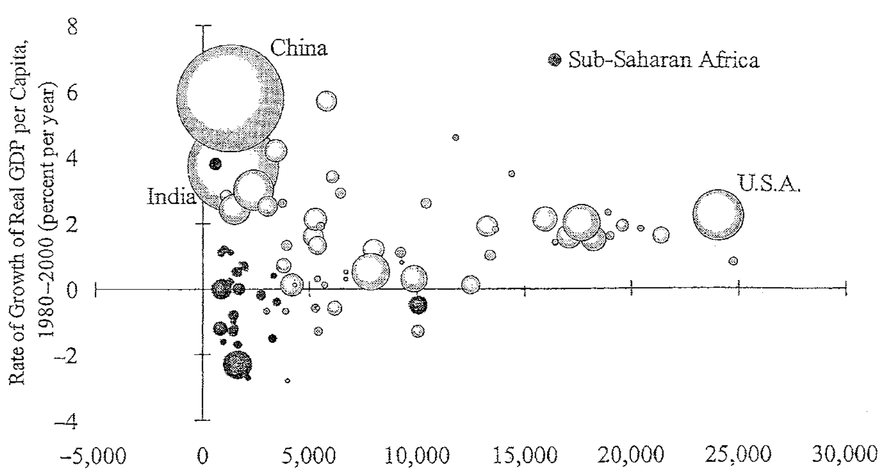


FIGURE 3-6. Population-Weighted Average Annual Growth (1980–2000) on Initial Level of Real GDP per Capita (as in Figure 3-5, but with area proportional to population in 1980). *Note:* The data are values for real GDP in U.S. dollars per equivalent adult. *Source:* Fischer 2003:12.1.

Likewise, for the same period, 20th percentile income in the United States fell relative to that income in the Asian regions and LDCs. Both suggest that the incomes of poor and rich people have converged, even if incomes of poor and rich countries have not (Bhalla 2003:190–196).[26]

Finally, LDC regions show progress in the Human Development Index, 1980–2000, based on life expectancy, education, and the logarithm of PPP$ GDP per capita. Because "HDI is an index of *relative* performance, improvements in all regions represent a convergence of this more general measure of economic and social progress across regions" [Fischer 2003:8, italics in original].

Robert Barro (1991) distinguishes between **conditional convergence**, with the presence of control variables, and their absence, **unconditional convergence**. With conditional convergence, holding fertility rates, education, and government spending as a share of GDP constant, income per capita in poor countries grows faster than in rich countries (Mankiw, Romer, and Weil 1992:407–437), as expected with diminishing returns in neoclassical growth theory (Chapter 5).[27]

Figure 3-6 anticipates Chapter 6's discussion of the trend of global income distribution, which considers both between-nation and within-nation inequalities and weights nations according to population.

Conclusion

Capitalism rose in the West from the 15th to 18th centuries with the decline of feudalism, the breakdown of church authority, strong nation-states supporting free trade, a liberal ideology tailor made for the bourgeoisie, a price revolution that speeded capital accumulation, advances in science and technology, and a spirit of rationalism. In the last one to one and one-half centuries, sustained economic growth occurred primarily in the capitalist West and Japan. During this period, the economic growth rate of most of these countries was over 1.5 percent yearly. Thus, the gap between these countries and the developing countries of Afro-Asia has increased greatly.

During the late 19th century, the Japanese acquired foreign technology, established a banking system, assisted private business people, aided technical improvement in small industry, implemented universal education, and kept foreign exchange rates close to market rates. However, LDCs can learn only limited lessons from Japan, because of its historically specific conditions and because some components of Japan's model may have contributed to its recent growth collapse.

The South Korean and Taiwanese approaches have been similar to those of Japan. Moreover, the Korean–Taiwanese model stressed government-business cooperation alongside government creation of contested markets among businesses.

[26] Zettelmeyer (2003:50) argues that convergence usually refers to cross-country effects, as in Figure 3-5, not individuals or population-weighted countries, as in Figure 3-6.

[27] Durlauf and Johnson (1995) discuss **club convergence**, convergence within groups or regimes. Keller (2004:752–782) stresses the importance of technological diffusion in productivity convergence.

The 1917 communist revolution in Russia provided an alternative to capitalism as a road to economic modernization. The state took control of economic planning and capital accumulation. In only a few decades, Soviet centralized socialism transformed Russia. Yet the major sources for this rapid growth, increased capital formation and increased labor participation rates, were exhausted in the decade or two before the collapse of communism in 1991. China performed better than Russia during its early industrialization, partly because of China's institutional changes and market reforms.

The economic growth of developing countries since World War II has been much more rapid than before the war. Yet, the postwar growth of developing countries has been no faster than the growth of developed countries. Whether this means convergence or divergence depends on the time, scope, and definitions.

Moreover, this growth masks a wide diversity of performance among the developing countries. From 1960 to 1992, almost half the LDC population lived in countries growing at an annual rate of 3 percent or better, but about one-fourth of this population grew by no more than 1 percent yearly. Since 1980, East Asia has grown the fastest and sub-Saharan Africa the slowest among world regions.

In the last decades of the 20th century, eight high-performing Asian economies have experienced rapid growth, despite the Asian financial crisis of 1997–1999. Since 1990, we can add India and other LDCs to this list. By contrast, some sub-Saharan African and other LDCs have not only experienced a slowdown but also a "meltdown," resulting in declining health, nutrition, and other basic needs for most of the country's people.

This story of growth is important as it helps determine whether societies can meet basic needs of food, clothing, housing, health, and literacy, and widen human choice to enable people to control their environment, enjoy greater leisure, acquire learning, and use more resources for aesthetics and humanistic endeavors.

TERMS TO REVIEW

- Asian borderless economy
- Asian tigers
- Association of South East Asian Nations (ASEAN)
- bourgeoisie
- Bretton Woods international monetary system
- capitalism
- cartels
- *Chaebol*
- club convergence
- conditional convergence
- contested markets
- convergence
- divergence
- European Regional Development Fund
- Fel'dman model
- Golden Age of Capitalist Growth
- Green Revolution
- Group of Seven
- import substitutes
- infrastructure
- Japanese development model
- *keiretsu*
- labor participation rate
- laissez-faire
- modern economic growth

- monopsony
- perestroika
- Protestant ethic
- real domestic currency appreciation
- real domestic currency depreciation
- Stalinist development model
- surplus
- terms of trade
- total factor productivity
- unconditional convergence
- *zaibatsu*

QUESTIONS TO DISCUSS

1. Discuss and assess Diamond's evolutionary biological approach to development.
2. Indicate the broad outlines of world leaders in national GDP per capita during the medieval and modern periods. How do we explain the reasons for changes in world leadership?
3. What are the characteristics of modern economic growth? Why was modern economic growth largely confined to the West (Western Europe, the United States, and Canada) before the 20th century?
4. How important were noneconomic factors in contributing to modern capitalist development in the West?
5. How does the *relative* gap between the West and Afro-Asian LDCs today compare to the gap a century and a quarter or half ago? How do we explain this difference?
6. Which countries outside the West have had the most development success in the last century? Are these non-Western development models useful for today's LDCs?
7. Evaluate Russia–Soviet Union as a model for today's LDCs.
8. Compare the economic growth of today's LDCs before and after World War II.
9. Indicate in some detail how sustained economic growth in North America has changed the material level of living from about 100 to 150 years ago to today.
10. Has average income in the rich and poor countries converged since 1980? In the past 100 to 150 years? Has the relative income of poor and rich people converged since 1980? In the past 100 to 150 years?

GUIDE TO READINGS

Maddison (2001, 2003) are the definitive sources on long-term economic growth. See Sharpe (2002:20–40) for a summary of Maddison's contribution plus useful graphs. Kuznets (1966, 1971) analyzes the origin of modern economic growth.

The World Bank's annual *World Development Indicators, World Development Report*, and *World Bank Atlas*; the UN's yearly *Human Development Report*; other sources indicated in Chapter 2's *Guide*; and their corresponding CD-ROMs are basic sources on recent economic growth. Morawetz (1977) has an excellent analysis of major trends in the economic growth of LDCs from World War II to 1975.

Initially, modern growth meant capitalist growth as Dillard indicates (1967:72–149; 1979:69–76). For criticisms of Weber's thesis on the Protestant ethic and

capitalist development, see Tawney (1926), Samuelsson (1957), Robertson (1959), and Chapter 12.

The annual *World Development Report* by the World Bank is the best of several sources on recent economic growth of LDCs and DCs (see the bibliographical note in Chapter 2). Morawetz's book (Twenty-five Years) and Kuznets (1966, 1971), although somewhat dated, are excellent sources on long-run economic growth. Bairoch's careful statistical work (1975, 1976, 1982) is worth perusing, although I think Bairoch, unlike Kuznets, underestimates 19th-century differences between GNP per capita in the DCs and the third world. Baumol et al. (1989) have detailed comparisons showing how rapid economic growth changed the welfare and lifestyle of Americans since the 19th century. Gregory and Stuart (2001) on Russian–Soviet economic development and Lichtenstein (1991) on Chinese development are excellent.

Ohkawa and Ranis (1985), Yoshihara (1994), Kunio (1994), and Nafziger (1986: 1–26; 1995) examine implications of the Japanese development experience for LDCs. Katz (1998, 2003) explains the reasons for "miracle" growth in Japan after World War II through the 1980s and for its current growth collapse. Ito (1992), although dated, is an excellent source on the Japanese economy.

For students interested in the high-performing Asian economies, see World Bank (1993a) and articles assessing that monograph in *World Development* (Amsden 1994:627–633; Kwon 1994:635–644; Lall 1994:645–654; Yanagihara 1994:663–670); also see note 11). *World Development* 16 (January 1988) has a special issue devoted to South Korea (Leipzinger 1988:1–5; Kim 1988:7–18). Hamilton (1984:38–43), Moore (1984:57–64), and Amsden (1989) discuss South Korea and Rodrik (2000:195–200) getting interventions in Korea and Taiwan right. Stein (1995) examines the implications of the Asian model for Africa.

Krugman (1994) debunks the Asian miracle, arguing that East Asia's high-performing economies' growth is based largely on the growth of inputs rather than technical progress. Despite the 1997–1999 Asian crisis, subsequent empirical studies have proven Krugman wrong.

Maddison (2002), Pritchett (1997), Fischer (2003:8–11), and Barro (1991) discuss whether convergence has occurred between DCs and LDCs. Islam (2003:309–362) surveys the convergence literature, linking it to the growth theory debate.

Kennedy, *The Rise and Fall of the Great Powers* (1987), contends that great powers emerge because of a strong economic base but decline (for example, Britain in the mid-20th century and the United States recently) from military overcommitment obstructing economic growth.

Alexander Gerschenkron, *Economic Backwardness in Historical Perspective* (New York: Praeger, 1982) attributes the industrial strategies of latecomers (19th-century France, Germany, Russia, and Italy) to the advantages of relative backwardness: adopting the backlog of the most modern technologies of the leaders (Britain and the United States), using strong ideological medicine to motivate entrepreneurs, and intervening by the state to provide capital and technology for rapid industrialization.

4 Characteristics and Institutions of Developing Countries

Scope of the Chapter

This chapter surveys the characteristics of developing countries, with particular emphasis on low-income economies. It looks at income distribution, political framework, family system, relative size of agriculture and industry, technology and capital levels, saving rates, dualism, international trade dependence, export patterns, population growth, labor force growth, literacy, and skill levels, and the nature of economic and political institutions, including governance; democracy and dictatorship; transparency; social capital; the state bureaucracy; tax collecting capability; a legal and judicial system; property and use rights; statistical services and survey data; and land, capital, insurance, and foreign exchange markets. The last section examines rent seeking and corruption and their relationships to state weakness and failure. Subsequent chapters will expand on economic patterns of development.

Varying Income Inequality

As economic development proceeds, income inequality frequently follows an **inverted U-shaped curve**, first increasing (from low-to middle-income countries), and then decreasing (from middle-to high-income countries). Even so, the proportion of the population in poverty drops as per-capita income increases (see Chapter 6).

Political Framework

VARYING POLITICAL SYSTEMS

In 2000–01, Freedom House (2002) ranked about one-fourth, 34 of 137 LDCs, as free, that is, enjoying political rights and civil liberties. Political rights mean not just a formal electoral procedure but that "the voter [has] the chance to make a free choice among candidates . . . and candidates are chosen independently of the state." Civil liberties implies having rights in practice, and not just a written constitutional guarantee of human rights. Freedom House (2002) designates Belize, Bolivia, Bulgaria, Cyprus, Dominican Republic, El Salvador, Ghana, Jamaica, Korea (South), Mali, Malta, Mauritius, Mexico, Mongolia, Panama, Peru, Namibia, Romania, South Africa, Suriname, Taiwan, Thailand, Uruguay, and the three Baltic countries as free in 2000–01 but Argentina, Bangladesh, Brazil, Kenya, Nigeria, Paraguay, Russia,

Senegal, Tanzania, Turkey, Venezuela, and Zimbabwe as not. If we assume that Freedom House's free countries are democracies, they comprise about 40 percent of LDCs' 5 billion people, because democracies include populous India.[1]

A SMALL POLITICAL ELITE

Unlike Western democracies, political control in LDCs tends to be held by a relatively small **political elite**. This group includes not only individuals who directly or indirectly play a considerable part in government – political leaders, traditional princes and chiefs, high-ranking military officers, senior civil servants and administrators, and executives in public corporations – but also large landowners, major business people, and leading professionals. Even an authoritarian leader cannot rule without some consensus among this influential elite unless he or she uses police and military repression, perhaps with the support of a strong foreign power.

LOW POLITICAL INSTITUTIONALIZATION

For the political elite, economic modernization often poses a dilemma. Although achieving modernity breeds stability, the process of modernization breeds instability. Certainly modernization enhances the ability of a governing group to maintain order, resolve disputes, select leaders, and promote political community. But urbanization, industrialization, educational expansion, and so on, eventually involve previously inactive ethnic, religious, regional, or economic groups in politics. According to Samuel Huntington, the explosion of mass participation in politics relative to institutional capacity to absorb new participants leads to political instability (Huntington 1968). (Of course, civil conflict is not confined to newly modernizing countries, as Canada, Belgium, Spain, and the United Kingdom currently have ethnic, religious, or regional conflict.)

EXPERIENCE OF WESTERN DOMINATION

Except for Japan, in the past 200 years – and especially in the first half of the 20th century – most of Africa and Asia were Western-dominated colonies. Even countries such as Afghanistan and Thailand, which were never Western colonies, experienced Western penetration and hegemony. And although most of Latin America became independent in the 19th century, it has been subject to British and U.S. economic and political suzerainty since then. Thus, during the century or two of rapid economic growth in the Western countries, most LDCs have not had the political independence essential for economic modernization.

[1] For the World Bank (2000b:8–9), about 95 (or 59 percent) of 161 LDCs are democracies. (Note that I have subtracted figures for DCs, largely democracies, to get this percentage.)

The U.N. Development Program (1991:20) ranks countries on a human freedom index (HFI) on civil and legal rights, freedom from torture and censorship, electoral and religious freedom, ethnic and gender egalitarianism, independent media, courts, and trade unions, and related indicators. The authors rank Sweden and Denmark 1st, the United States 13th, and China, Ethiopia, Romania, Libya, and Iraq at the bottom of 88 countries.

An Extended Family

The **extended family**, including two or more nuclear families of parent(s) and children, is a common institution in developing countries. Although some scholars regard the extended family as an obstacle to economic development, I disagree. To be sure, if one family member earns a higher income and saves, others may demand the savings be shared, which hinders development, as funds are diverted from capital formation. However, if family members attend secondary school or university, acquire training, seek urban employment, or start a new business, the larger family unit may pool risks to support them financially and so contribute to economic development.

Peasant Agricultural Societies

Most low-income countries are predominantly peasant agricultural societies. **Peasants** are rural cultivators. They do not run a business enterprise as do farmers in the United States but, rather, a household whose main concern is survival. Although patterns of land ownership, tenure, and concentration vary considerably, most of the land in these societies is worked by landless laborers, sharecroppers, renters, or smallholders rather than large commercial farmers. In Afro-Asia, the average farm is usually less than 5 hectares or 12 acres in size (see Chapter 7).

A High Proportion of the Labor Force in Agriculture

In low-income countries, 45–70 percent of the labor force is in agriculture, forestry, hunting, and fishing; 10–25 percent in industry (manufacturing, mining, construction, and public utilities); and 15–35 percent in services (see Table 4-1). In contrast, high-income countries tend to have less than 5–10 percent of the labor force in agriculture; 20–30 percent in industry; and 60–75 percent in services. (A generation or two ago, the share of the labor force in agriculture in low-income countries may have been 90 percent, about the same as that of the United States in the late 18th century, when Thomas Jefferson saw the independent yeoman farmer as the wellspring of virtue.)

In low-income countries, the average agricultural family produces a surplus large enough only to supply a small nonagricultural population. In these countries, one-half to two-thirds of the labor force produce food; one-thirty-third do so in the United States. Obviously, agricultural productivity in low-income countries is much lower than in the United States and other developed countries.

A High Proportion of Output in Agriculture

During the modern period, the shares of agriculture in output and the labor force have declined. In recent decades, the percentage of the world's labor force engaged in agriculture fell from 53 percent in 1980 to 49 percent in 1990 to 44 percent in 2001

TABLE 4-1. Industrial Structure in Developing and Developed Countries

	Percentage of labor force in			Percentage of GDP value added in		
	Agriculture (1998–2001)	Industry (1998–2001)	Services (1998–2001)	Agriculture (2001)	Industry (2001)	Services (2001)
Categories of countries						
Low-income countries	57	20	23	24	32	45
Middle-income countries	46	25	29	10	36	54
All developing countries	51	23	26	12	36	52
High-income countries	4	28	68	2	29	70
Low and middle income countries						
Bangladesh	50	13	37	23	25	52
India	56	26	28	25	26	48
Pakistan	44	20	36	25	23	52
Philippines	39	16	45	15	31	54
Thailand	48	19	33	10	40	49
Malaysia	18	31	51	9	49	52
Indonesia	47	17	36	16	47	37
China	58	24	18	15	51	34
Tanzania	71	13	16	45	16	39
Kenya	18	17	65	19	18	63
Ethiopia				52	11	37
South Africa	13	34	53	3	31	66
Congo, Dem. Rep.	65	15	20	56	19	25
Côte d'Ivoire	58	9	33	24	22	54
Nigeria	38	26	34	30	46	25
Ghana				36	25	39
Egypt	31	20	49	17	33	50
Iran				19	33	48
Syria	18	33	49	22	28	50
Mexico	17	27	56	4	27	69
Costa Rica	16	24	60	9	29	62
Colombia	2	26	72	13	30	57
Brazil	23	20	55	9	34	57
Argentina	1	26	73	5	27	69
Poland	19	32	49	4	37	59
Russian Fed.	11	30	59	7	37	56
High-income countries						
Korea, Rep.	11	28	61	4	41	54
U.S.	3	23	74	2	25	73
Canada[a]	4	22	74	3	32	65
Germany	3	35	62	1	31	68
Japan	5	31	64	1	32	67
Australia	5	22	73	4	26	70

Notes:
Blank cells indicate no information available.
Figures may not add up to 100 percent because of rounding.
[a] 1990 figures for GDP shares.

Sources: World Bank 2003h:41–47,189–192; and author's interpolation based on U.N. Development Program 1994:162–63; World Bank 1994i:166–67; World Bank 1992i:222–23.

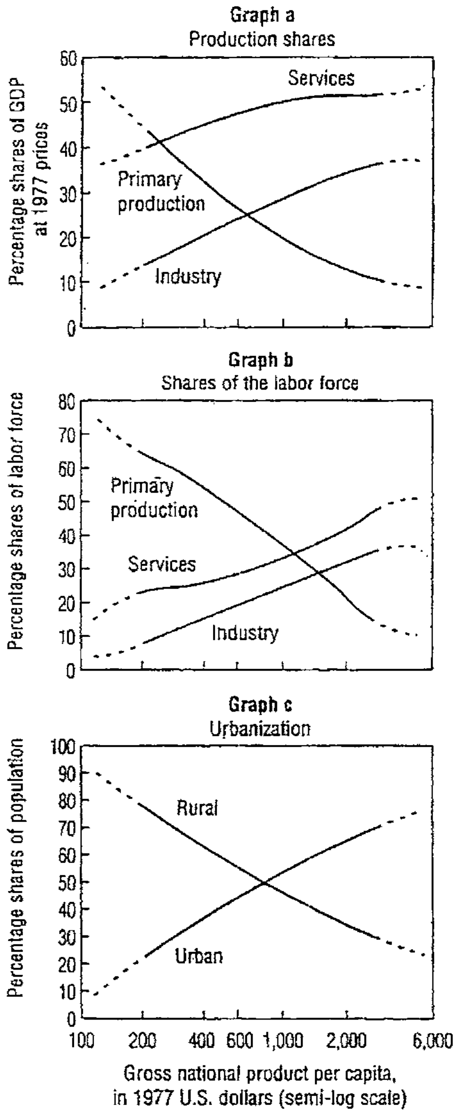


FIGURE 4-1. Economic Development and Structural Change. As GNP per capita increases, the output and labor force share in agriculture decreases, while that in industry and services increases. *Source:* World Bank 1979i:44.

(Firebaugh 2003:188; World Bank 1997i:13; Table 4-1).[2] Figure 4-1 indicates that as countries develop, the output and labor force share in agriculture declines, and that in industry and services increases. The least-developed and low-income countries of Asia and Africa are now in the early part of the labor force change, whereas the middle-income states of Latin America, East Asia, and the Middle East are in a later part. In high-income countries, the rising output and labor force share of services leads to stability and then an eventual decline in the share of industry.

Typically, the shift in labor force shares from agriculture to industry lags behind the shift in production shares. One reason is the unprecedented growth of the labor

[2] All figures are from the World Bank, including population data for low-, middle-, and high-income countries from World Bank (2003c:40).

force since the 1950s; it has far exceeded industry's capacity to absorb labor (see Chapter 9). In addition, partly because of advanced technology and greater capital intensity, industry's labor productivity is higher than agriculture's. Thus, the output percentage in agriculture for low-income countries, 20–35 percent, is lower than the labor force percentage and higher in industry, 20–40 percent. (Note the range of figures in Table 4-1.) Figure 4-1 indicates that although industry and agriculture accounted for equal shares of output at an income level of just under $700 per capita (in 1977 U.S. dollars), parity in labor force shares was not reached until income was more than twice that level. In high-income countries, less than 5 percent of production is in agriculture, 25–40 percent in industry, and more than half in services.

Although the relative size of the nonagricultural sector is positively related to per-capita income, this relationship does not mean industrialization creates prosperity; instead, industrialization may be a consequence of shifts in the composition of aggregate demand caused by higher per-capita incomes. At the lowest levels of per-capita income, almost one-half of total demand is for food, and relatively large shares are for shelter and clothing. However, as average income increases, the percentage spent on food and other necessities falls (Table 4-2, line 3b), and the percentage spent on manufactured consumer goods and consumer services rises.

The correlation of increased shares of industry and services in output and employment with economic growth is closely related to shifts in economic activity from rural to urban areas (Graph c, Figure 4-1). Modern, nonagricultural activities benefit greatly from economies of location. As these activities increase their shares in output and employment, they spur the growth of urban centers (World Bank 1979i:44–45).

Today, the DCs' services sector's shares are even larger than those in Figure 4-1, reflecting the fast income and productivity growth in manufacturing, contributing to its employment reduction[3] and its ability and willingness to pay more for dentistry, banking, barbering, psychology, teaching, and other labor-intensive services, whose productivity is growing slowly. DCs' share of global manufacturing employment fell from 37.0 percent in 1980 to 30.9 percent in 1997; transitional countries' share fell more, whereas LDCs increased their share (Ghose 2003:18). Manufacturing output has been increasingly disaggregated (divided) into numerous service-oriented stages of production with cheaper transport and communication and enhanced specialization. Bringing the stages together may involve services rendered at various geographical locations rather than mass production via an assembly line under one roof, as with Henry Ford's Model T. The following is part of the explanation for the service sector's rising share in the United States:

> A key feature of US trade is the decomposing of the production process into separable functions that can then be allocated around the world to countries that possess comparative advantage in that particular phase of the production process. The pieces are then brought together for final assembly and sale. (Mann 1999:39)

[3] United States manufacturing jobs fell from more than 17 million annually in 1997–2000 to less than 15 million in 2003 (Hitt 2004:A2).

TABLE 4-2. Normal Variation in Economic Structure with Level of Development

	Predicted values at different income levels (stated in 1964 prices)									
Process	**Mean[a] under $100**	**$100**	**$200**	**$300**	**$400**	**$500**	**$800**	**$1,000**	**Mean[b] over $1,000**	**Change**
1. Tax revenue	0.106	0.129	0.153	0.173	0.189	0.203	0.236	0.254	0.282	0.176
2. Eductation expenditure	0.026	0.033	0.033	0.034	0.035	0.037	0.041	0.043	0.039	0.013
3. Structure of domestic demand										
a. Government consumption	0.119	0.137	0.134	0.135	0.136	0.138	0.144	0.148	0.141	0.022
b. Food counsumption	0.414	0.392	0.315	0.275	0.248	0.229	0.191	0.175	0.167	−0.247
4. Structure of trade										
a. Exports	0.172	0.195	0.218	0.230	0.238	0.244	0.255	0.260	0.249	0.077
b. Primary exports	0.130	0.137	0.136	0.131	0.125	0.120	0.105	0.096	0.058	−0.072
c. Manufacutred exports	0.011	0.019	0.034	0.046	0.056	0.065	0.086	0.097	0.131	0.120
d. Service exports	0.028	0.031	0.042	0.048	0.051	0.053	0.056	0.057	0.059	0.031
e. Imports	0.205	0.218	0.234	0.243	0.249	0.254	0.263	0.267	0.250	0.045

[a] Approximately $70 mean value of countries with per capita GNP under $100 vary slightly according to composition of the sample.
[b] Approximately $1,500 mean values of countres with per capita GNP over $100 vary slightly according to composition of the sample.

Source: Chenery and Syrquin 1975:20–21.

Indeed, improved technology and increasing disaggregation have contributed to a reduced labor share in industry not only in DCs but world-wide (Hilsenrath and Buckman 2003:A2).

Inadequate Technology and Capital

Output per worker in LDCs is low compared to developed countries because capital per worker is low. Lack of equipment, machinery, and other such capital and low levels of technology, at least throughout most of the economy, hinder production. Although output per unit of capital in LDCs compares favorably to that of rich countries, it is spread over many more workers.

Production methods in most sectors are traditional. Many agricultural techniques, especially in low-income countries, date from biblical times. Wooden plows are used. Seed is sown by hand. Oxen thresh the grain by walking over it. Water is carried in jugs on the head, and the wind is used to separate wheat from straw.

Generally, most manufacturing employment, although not output, is in the **informal sector**. These may be one-person enterprises, or at most, units with less than 10 workers, many of whom are apprentices or family workers. Production is labor-intensive. Simple tools are used, and there is no mechanical power.

Low Saving Rates

Sustainable development refers to maintaining the productivity of natural, produced, and human assets (or wealth) over time. The World Bank (2003h:13–18) uses a green national accounts system of environmental and economic accounts, measuring these changes in wealth as adjusted net savings.

From gross domestic savings, the Bank subtracts not only the consumption of fixed capital but also energy depletion, mineral depletion, forest depletion, and carbon dioxide damage, while adding education spending, a proxy for human asset accumulation. This adjusted net savings (Figure 4-2) gives lower than traditional estimates for low- and middle-income countries, as resource depletion and environmental damage are a higher proportion of savings and education spending a lower proportion than those for high-income countries. (Figure 4-2 shows that high-income countries' net savings after adjustment are a higher percentage of gross national savings than for developing countries.) Adjusted net savings as a percentage of GNI, 2001, is 6.6 percent for low-income countries, 9.3 percent for middle-income countries, and 13.7 percent for high-income countries (World Bank 2003h: 176).

A country's **capital stock** is the sum total of previous gross capital (including human capital) investments minus physical capital consumption (or depreciation), natural capital depletion, and environmental capital damage. Consistently low adjusted net savings means that capital stock in low-income countries remains low.

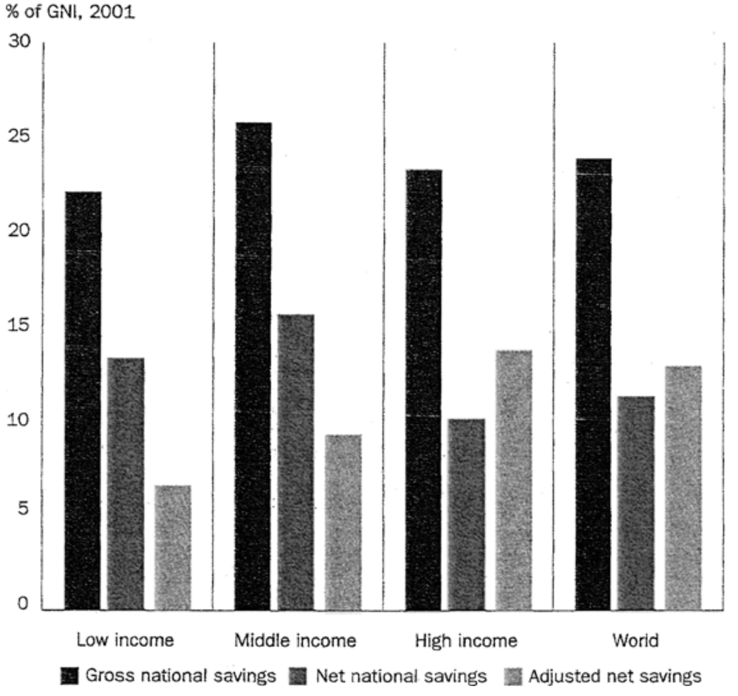


FIGURE 4-2. Adjusted Net Savings Tend to be Small in Low- and Middle-income Countries. *Source:* World Bank 2003h:119, 174–176.

A Dual Economy

Although in the aggregate low-income countries have inadequate technology and capital, this is not true in all sectors. Virtually all low-income countries and many middle-income countries are **dual economies**. These economies have a traditional, peasant, agricultural sector, producing primarily for family or village subsistence. This sector has little or no reproducible capital, uses technologies handed down for generations, and has low marginal productivity of labor (that is, output produced from an extra hour of labor is less than the subsistence wage).

Amid this labor-intensive, subsistence, peasant agriculture (together with semisubsistence agriculture, petty trade, and cottage industry) sits a capital-intensive enclave consisting of modern manufacturing and processing operations, mineral extraction, and plantation agriculture. This modern sector produces for the market, uses reproducible capital and new technology, and hires labor commercially (where marginal productivity is at least as much as the wage). According to the Lewis model (Chapter 5), the dual economy grows only when the modern sector increases its output share relative to the traditional sector (Lewis 1954:139–191).

In the 1950s and 1960s, this modern sector tended to be foreign owned and managed. Today, it is increasingly owned domestically, by either government or private capitalists, and sometimes jointly with foreign capital. Despite local majority ownership, operation of the modern sector often still depends on importing inputs,

purchasing or leasing foreign patents and technology, and hiring foreign managers and technicians.

Varying Dependence on International Trade

The ratio of international trade to GNP varies with population size but not income per capita. Thus, the United States and India have low ratios and the Netherlands and Jamaica high ratios.

Even so, a number of developing countries are highly dependent on international trade and subject to volatile export earnings. Several low-income countries and oil-exporting countries depend a great deal on a few commodities or countries for export sales. For example, in 1992, **primary commodity export concentration ratios**, the three leading **primary products** (food, raw materials, minerals, and organic oils and fats) as a percentage of the *total* merchandise exports, were high for low-income sub-Saharan Africa, Central America, and a few other LDCs. Percentages included Nigeria (crude petroleum and petroleum products, cocoa) 96; Iran (crude petroleum, petroleum products, miscellaneous fruits) 94; Ethiopia (coffee; undressed hides, skins and furs; and crude vegetable materials) 87; Saudi Arabia (crude petroleum, fin fish, shellfish) 87; Venezuela (crude petroleum, petroleum products, gas) 81; Ecuador (crude petroleum, bananas, shellfish) 81; Zambia (copper, cotton, unmanufactured tobacco) 80; Uganda (coffee, cotton, undressed hides, skins, and furs) 79; Togo (natural phosphates, cotton, cocoa) 75; Papua New Guinea (copper, timber, coffee) 71; Cameroon (crude petroleum, cocoa, timber) 68; Myanmar or Burma (timber, vegetables, shellfish) 67; Honduras (bananas, coffee, shellfish) 64; Trinidad and Tobago (petroleum products, crude petroleum, gas) 64; Paraguay (cotton, soybeans, vegetable meal) 61; Panama (bananas, shellfish, sugar) 60; Cote d'Ivoire (cocoa, timber, coffee) 59; Chile (copper, timber, animal feeds) 55; Bolivia (zinc, gas, tin ore) 53; Nicaragua (coffee, beef and cattle, cotton) 52; Kenya (tea, coffee, dried preserved fruit) 52; Madagascar (spices, shellfish, coffee) 52; Central African Republic (coffee, timber, cotton) 52; and Syria (crude petroleum, petroleum products, shellfish) 51. But more diversified and industrially oriented South Korea had a percentage of 4, China 6, India 8, Turkey 10, the Philippines 11, Brazil 14, Thailand 14, and Pakistan 15. In 1985, six primary products accounted for more than 70 percent of sub-Saharan Africa's export earnings (World Bank 1994f:82–83; Nafziger 1988a:55).

Furthermore, although 76 percent of the exports of developed countries is to other DCs and only 24 percent with LDCs; 75 percent of LDC trade is with DCs and only 25 percent with other LDCs (Table 4-3). Some trade between rich and poor states – very important to developing countries – is not nearly so essential to developed countries. For example, in the 1980s, one-third of Ghana's exports was cocoa to Britain, corresponding to only a fraction of 1 percent of its imports. And one-third of 1 percent of an English firm's sales comprised all the machinery bought by Ghana's largest shoe manufacturer.

TABLE 4-3. Patterns of Trade between Developed and Developing Countries, 2001 (percentage of total exports)

	Exports to	
Exports from	**Developed countries**	**Developing countries**
Developed countries	76	24
Developing countries	75	25
All countries	76	24

Source: World Bank 2003h:314.

Rapid Population Growth

About 5.3 billion people, or 82 percent of the world's 6.5 billion people in 2004, live in developing countries. Developing countries have a population density of 500 per arable square kilometer (63 per square kilometer or 162 per square mile) compared to 263 per arable square kilometer (23 per square kilometer) in the developed world. These figures contribute to a common myth that third-world people jostle each other for space. However, India, with 625 inhabitants per arable square kilometer, whereas more densely populated than Canada (67) and the United States (156), is less densely populated than Germany (714) and Britain (1,000). Moreover China (1,000) is not so dense as Japan (2,500), whereas both the Netherlands and Bangladesh have 1,667 (computed from World Bank 2003h:124–126; Population Reference Bureau 2002).

The problem in LDCs is not population density but low productivity (low levels of technology and capital per worker) combined with rapid population growth. Between 1945 and 2004, death rates in developing countries were cut more than two-thirds by better public health, preventive medicine, and nutrition. Additionally, improved transport and communication made food shortages less likely. Whereas the population growth rate in industrialized countries was 0.1 percent in 2004, LDC birth rates remained at high levels, resulting in an annual growth of 1.6 percent (a rate doubling population in 44 years). High fertility means a high percentage of the population in dependent ages, 0–14, and the diversion of resources to food, shelter, and education for a large nonworking population (see Chapter 8).

The lagged effect of even more rapid population growth in past decades has generated an LDC labor force growth estimated at 1.9 percent yearly in 2004 – a much faster labor force growth than that of industrialized Europe in the 19th century (which grew at less than 1 percent a year). Industrial employment's demand growth lags behind this labor force growth, so that unemployment continues to rise in developing countries, especially in urban areas (Chapter 9).

Low Literacy and School Enrollment Rates

When compared to developed countries, literacy and written communication are low in developing countries. Low-income countries have an adult literacy rate of 61 percent; middle-income countries, 90 percent; and high-income countries, (rounded up to) 100 percent. Among world regions, South Asia has a literacy rate of 59 percent; sub-Saharan Africa, 65 percent; East Asia, 90 percent; the Middle East, 69 percent; and Latin America, 89 percent (cover table). Although LDC literacy rates are low compared to those of DCs, LDC rates have increased steadily since 1950 when a majority of third-world adults were illiterate, and substantially since 1900.

Recently, a number of low-income countries made primary education free or compulsory, so that LDC primary enrollment rates (taken as a percentage of children aged 6–11) doubled from 1960 to 2000 (except in East Asia and Latin America, where 1960 rates were more than 60 percent). Enrollment was 95 percent in low-income countries, virtually 100 percent in middle-income countries, 86 percent in sub-Saharan Africa, 98 percent in South and Southeast Asia, 95 percent in the Middle East, and virtually 100 percent in Latin America, East Asia, and DCs. Secondary enrollment rates (children aged 12–17) were 44 percent in low-income countries, 70 percent in middle-income countries, 27 percent in sub-Saharan Africa, 48 percent in South and Southeast Asia, 61 percent in East Asia, 76 percent in the Middle East, 86 percent in Latin America, and virtually 100 percent for high-income countries. Tertiary (postsecondary, including university) rates were 8 percent in low-income countries, 17 percent in middle-income countries, 4 percent in sub-Saharan Africa, 9 percent in East Asia, 10 percent in South and Southeast Asia, 21 percent in Latin America, 22 percent in the Middle East, 44 percent in Eastern Europe and Central Asia, and 62 percent in high-income countries (World Bank 2003h:82).

It is difficult to determine if education is a cause or effect of economic development. A well-educated citizenry contributes to higher income and productivity, which in turn lead to a greater investment in primary education and adult literacy programs. In any case, literacy and enrollment rates are *not* so highly correlated to GNP per head as might be expected. First, there is little correlation at upper-income levels. Most countries have attained virtually universal primary education (UPE) and nearly 100 percent literacy (lagging slightly behind UPE) by the time average yearly income reaches $5,000–$10,000 (PPP$15,000–20,000). Second, such places as Kerala (in southwestern India), Sri Lanka, and Vietnam, which have tried to meet basic educational and other needs for even the poorest portion of the population, have higher literacy rates (91 percent, 92 percent, and 93 percent, respectively) than would be expected from a per capita GNP of $400–800 yearly or less. Third, adult literacy rates in countries such as Saudi Arabia, the United Arab Emirates, Iran, and Oman, all with no more than 75 percent, lagged behind income levels, which were elevated by the sudden oil-created affluence of the 1970s (World Bank 2003h:88–90; these anomalies are discussed by Hicks and Streeten 1979:572–573).

Many LDCs discriminate against education and employment for women. Literacy rates for women in low-income countries are three-fourths and enrollment rates 80 to 90 percent the rates for men (World Bank 2003h:90; U.N. Development Program 2001:221).

An Unskilled Labor Force

Production patterns and low literacy rates in LDCs correspond to a relatively unskilled labor force. In 1960, 12 percent of the labor force in low-income countries (under $700 per capita GNP) were in white-collar jobs (professional, technical, administrative, executive, managerial, clerical, and sales) compared to 21 percent in middle-income countries ($700 to $1,500 per capita GNP), and 31 percent in high-income countries (over $1,500 per capita GNP). In developing countries, a large share of the labor force is unskilled and the population lower class (mostly peasants and manual workers); in developed countries, the reverse is true.

As economic development occurs, the structure of the workforce changes. Capital and skilled labor are substituted for unskilled labor. Thus from 1960 to 1980, LDC white-collar worker shares increased by more than one-third. Moreover, in the United States, the number of white-collar workers rose from 17 percent in 1900 to 45 percent in 1960, whereas the share of manual laborers declined sharply from 71 percent to 45 percent (Squire 1981:49–51; Kuznets 1966:191–192).

Another characteristic of low-income countries is a small middle class of business people, professionals, and civil servants. As economic development takes place and the social structure becomes more fluid, the size of this middle class increases.

Poorly Developed Economic and Political Institutions

INSTITUTIONS

Economic policies are no better than the institutions that design, implement, and monitor them (Aguilar 1997). Institution building takes time, evolving locally by trial and error (Rodrik 2000b). Figure 4-3 shows that the development of institutions is highly correlated with GDP per capita. Here institutional development measures "the quality of governance, including the degree of corruption, political rights, public sector efficiency, and regulatory burdens" (IMF 2003:97). Moreover, the protection of property rights and the limits on the power of the executive are both highly correlated with income per capita. History, geography, and law influence institutional development. History includes the legacy of 17th- to 19th-century European colonization, including enforcement of law, ensurance of property rights, and, negatively, the extraction of natural resources (as in much of sub-Saharan Africa and Latin America). Another difference is that between Latin America, where institutions concentrated economic power in an elite, compared to North America, where institutions permitted broader participation in economic and political life (ibid., pp. 98–100; Acemoglu, Johnson, and Robinson 2001).

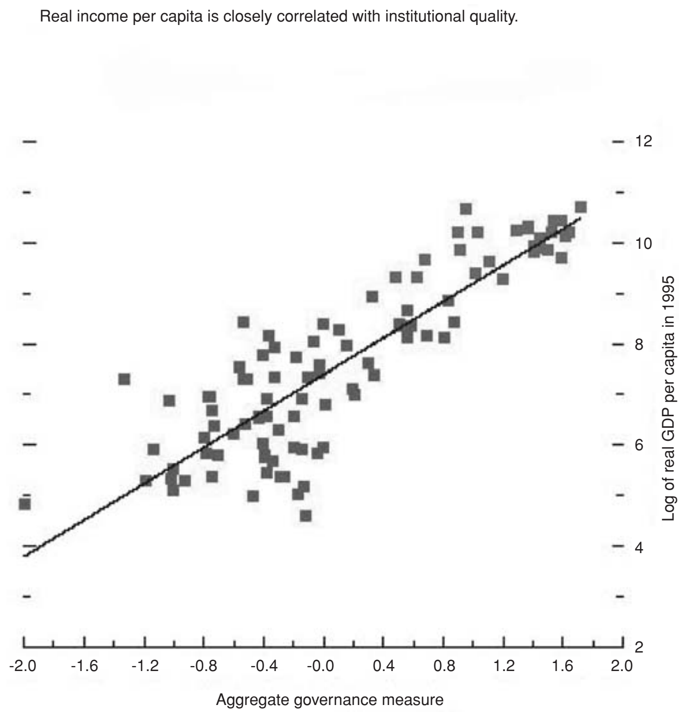


FIGURE 4-3. Relationship Between Income and Institutions. The aggregate governance measures the overall quality of governance, including the degree of corruption, political rights, public sector efficiency, and regulatory burdens (see IMF 2003d:119–120). *Sources:* IMF 2003d:97; and Kaufman, Kraay, and Zoido-Lobato′n 1999.

Macroeconomic stabilization and adjustment programs, foreign aid, and foreign investment are not likely to be effective in spurring a country's economic development if economic and political institutions are poorly developed. Building institutions and investing in infrastructure are essential to spur investment by nationals and foreigners in directly productive investment projects. Low-income countries and other vulnerable countries need to develop a legal system; monetary and fiscal institutions; capital, land, and exchange markets; a statistical system; and a civil society independent of the state (for example, private and nongovernmental entities such as labor unions, religious organizations, educational and scientific communities, and the media) to achieve economic development.

Nobel laureate Douglass C. North (1997:2) indicates that "**institutions** are the rules of the game of a society composed of the formal rules (constitutions, statute and common law, regulations), the informal constraints (norms, conventions, and internally devised codes of conduct) and the enforcement characteristics of each. Together they define the way the game is played." Richard Sandbrook (2002:158) defines political institutions as the "rules of the game that shape the behavior of people when they contest and exercise power, as well as their, and the general public's, expectations regarding the actions of others."

Many LDCs lack the economic institutions and governance structures (efficient and transparent administration and legislature, enforcement of contracts and property rights) of highly institutionalized democratic countries that reduce capriciousness, predatory behavior, and potential conflict. Sandbrook (2002) stresses building the rule of law, constructing an effective, efficient and nonpartisan civil service, circumscribing the patronage system so that it does not destroy the productive economy, and instituting accountability at all levels, a daunting task of reform.[4] LDCs need a legal and judicial system, with such components as trademarks, registration of signed contracts, letters of credit, contract law with stipulated penalties for nonperformance, product liability suits, corporate and enterprise legislation, and a police force to enforce against force, theft, fraud, and violation of contracts (Lin and Nugent 1995).[5]

Many low-income countries, especially in Africa, are characterized by predatory rule, involving a personalistic regime ruling through coercion, material inducement, and personality politics, which degrades the institutional foundations of the economy and state (Nafziger and Auvinen 2002:154). Examples of predatory regimes include Congo's (Zaire's) Mobutu Sese Seko (ruled from 1965 to 1997), Liberia's warlord and later ruler Charles Taylor (1990–), and Nigeria's Sani Abacha (1993–98), whose predation was limited because federalism enabled states to provide public services separate from his patronage.

In the 1990s, North Korea's leader Kim Jong Il experimented with economic reforms, tolerating small vendors and South Korea's development of a tourist resort, a greenhouse complex, and a pig farm. Still, North Korea's economy declined about 50 percent from 1990 to 1998, after the Soviet collapse and continuing Chinese liberalization reduced the trade and aid that supported the Kim regime. Moreover, Pyongyang's reforms have been meant primarily to strengthen central government control and Kim's one-man rule. Economic reform, with its faster growth, was not allowed to threaten Kim's primary concern to stay in power and maintain control (Fairclough 2003:A12).

Neopatrimonial or predatory rulers may not be interested in reform emphasizing rule of law, as it would eliminate an important source of patronage (Sandbrook 2002:166). But a political elite interested in accelerating growth should put a priority on legal and bureaucratic reform.

In most low-income countries, land, capital and credit, insurance, and forward and other exchange-rate markets are poorly developed. As discussed later, land markets should assign property rights to cultivators, but without undermining usufruct rights for traditional community or village land-rights systems. Exchange markets that increase the efficiency of transactions enhance growth and external adjustment.

[4] Very different institutional structures are reasonable substitutes for each other, both in similar and different contexts. History does not support the idea that any "particular institution, narrowly defined, is indispensable for growth" (Engerman and Sokoloff 2003).

[5] Posner (1998) argues that poor countries that lack the resources for a costly, ambitious creation of a first-class judiciary or extensive system of civil liberties can support economic reform with more modest expenditures on substantive and procedurally efficient rules of contract and property.

Macroeconomic stability is enhanced by a robust capital market and financial system, which select "the most productive recipient for [capital] resources [and] monitor the use of funds, ensuring that they [continue] to be used productively" (Stiglitz 1998:14). Government needs to develop a bond market to facilitate raising resources for social spending and economic development. Also important is a central bank, with a director and staff chosen for their technical qualifications, and who use economic criteria for making decisions about monetary expansion (Uche 1997). However, Ajit Singh (1999:341, 352) argues that, although improving the banking system is important for increasing low-income countries' savings and investment, a stock market is "a costly irrelevance which they can ill afford"; for most others, "it is likely to do more harm than good," as its volatility may contribute to "financial fragility for the whole economy," increasing "the riskiness of investments and [discouraging] risk-averse corporations from financing their growth by equity issues."

Low-income countries need to expand social overhead capital to increase the productivity and attractiveness of both domestic and foreign private investment. This includes investments in infrastructure such as transport (roads, railroads, coastal shipping, ports, harbors, bridges, and river improvement), communication (telegraph, telephone, and postal services), electronics, power, water supply, education, extension, research in science and applications of technology to commercial practice, and trade fairs and exhibitions. A high-quality communications system, with competitive prices, is essential to increase the productivity and propensity to invest. In transport, communication, education, and science, the state usually plays a major role in making investments.

Still from Dakha to Dakar, mobile telephones, based on satellite technology, have enabled poor countries to overcome backwardness in landline phone service. Fishers and small farmers and traders can afford to buy cell phones to search prospective buyers on the best time to sell. Most of these gains, from cheaply leapfrogging several steps, have come from efforts by private firms or nongovernmental organizations (NGOs), with government's primary role not to minimize interference with technological progress.

A major investment in infrastructure is the development of a statistical service, with timely, accurate, and comprehensive data, widely accessible to relevant publics. For example, LDCs need poverty and income distribution data to provide safety nets and more even development. The database should be national in coverage, comparable across time and place, and include household surveys or censuses, with information on noncash income such as food and other goods produced at home (Fields 1994; see also Chapter 6). In addition, if investors and the public had access to better information, LDCs would not continue unsustainable policies of bad debts to banks or exchange transactions of the banking system (Fischer 1998).

In examining causation, we have problems analogous to the question: Which comes first the chicken or the egg? While the development of institutions is highly correlated with the level of economic development, we cannot establish the direction of causation, as either stronger economic performance may spur institutional change or

vice versa. Furthermore, it's not clear which direction of causation is stronger: sound economic policies contributing to better institutions or good institutions engendering more efficacious policies.

Take, for example, the **European Union accession countries**, who joined in 2004 – Poland, Hungary, Czech Republic, Slovakia, Estonia, Latvia, Lithuania, Slovenia (eight countries making the transition from communism to capitalism), Malta, and Cyprus. The prospect of membership, together with EU assistance, encouraged removal of trade barriers, capital-account liberalization, legal reform, regulation of financial markets, restructuring of state enterprises, the development and enforcement of competition policy, reduction of corruption, and adoption of minimum standards associated with the European Social Charter (in health, safety, and rights of workers, worker representation and bargaining, and social welfare). Here external incentives, membership in the EU, spurred the effort to improve domestic institutions, as exemplified by the faster progress of the eight compared to members of the Commonwealth of Independent States (former Soviet Union minus Baltic countries Estonia, Latvia, and Lithuania) in institutional and structural reforms (IMF 2003:101–105; European Bank for Reconstruction and Development 2002).

Another example cited by the IMF (2003:102) in which prospective membership aids institutional reform is the **World Trade Organization**, which administers rules of conduct in international trade. Ironically, however, Rose (2003) shows that WTO membership has no positive effect on international trade.

INSUFFICIENT STATE TAX COLLECTIONS AND PROVISION OF BASIC SERVICES

One important institutional capability is the capacity to raise revenue and provide basic services. In several failed low-income countries, such as Sierra Leone, Liberia, Sudan, and Somalia, the state has failed to provide minimal functions such as defense, law and order, property rights, public health (potable water and sewage disposal), macroeconomic stability, and protection of the destitute, to say nothing of intermediate functions such as basic education, transport and communication, pollution control, pensions, family allowances, and health, life, and unemployment insurance (World Bank 1997i). A vicious circle of declining legitimacy, fiscal mismanagement, and the further erosion of legitimacy from a decline in public services can contribute to a country's economic incapability and political instability. Examples include Mengistu Haile Mariam's Ethiopia revolutionary socialist government (1974–91), Russia, Georgia, and Tajikistan. Governments need to maintain or reestablish a social compact with all their citizens, including the poor, in which some basic needs are met in return for tax contributions according to the ability to pay.

One way to increase legitimacy and raise tax revenue is to replace widely evaded direct taxes, such as personal income taxes, with indirect taxes. One example of such tax is the **value-added tax (VAT)**, which is simpler, more uniform, and less distortive than a simple sales tax, and has a high income elasticity of revenue generation. Still, the VAT can face administrative problems, especially among the numerous small industrial firms and traders in low-income countries. Thus, the major point is that

building economic institutions and infrastructure, including a tax system that raises enough revenue for basic services, is essential for spurring investment to increase economic growth and stability (Chapter 14).

LACK OF TRANSPARENCY

Transparency, political accountability, and knowledge transmission are key ingredients in effective development strategy (World Bank, 2002f:v–23).[6] Yet as the 2001 Nobel Prize economist Joseph Stiglitz (2002:27) explains, there are natural asymmetries of information between governing elites and citizens. The most important check against abuses, Stiglitz argues (2002:27–44), is the presence of a competitive press that reflects a variety of interests. The media play a major role in the extent of support (or opposition) for governing elites and industrial leaders, provision of a voice for the people, and the spread of economic information. Media freedom is highly correlated with democracy, food security (Sen in Chapter 2), efficiency, and economic development (Islam 2002:1–3; Stiglitz 2002:29–35). The English 19th-century philosopher and political economist John Stuart Mill's *On Liberty* argued that public scrutiny is an effective way of sorting out good arguments from bad ones (Mill 1961:205; Stiglitz 2002:30).

POOR GOVERNANCE: DEMOCRATIC AND AUTHORITARIAN REGIMES

Democracy enhances and authoritarianism reduces openness and accountability. Still many electoral democracies in Africa and Asia, just recently countries making the transition from authoritarianism to democracy, have few civil and political freedoms. Indeed, many are "virtual democrac[ies], . . . deliberately contrived to satisfy international norms of presentability" (Joseph 1998:3–4).

Democratization includes the growth of **civil society –** institutions independent of the state, such as private and nongovernmental entities such as labor unions, religious organizations, educational and scientific communities, and the media. **Social capital** includes tools and training that, similar to other forms of capital, enhance individual productivity. Social capital "refers to features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit" (Putnam 95:67). In authoritarian regimes and virtual democracies, the opposition parties, free press, unions, strong civil society, and networks of social trust needed to support a transparent, accountable democratic society are still lacking (Joseph 1998).

Democratically elected regimes in LDCs "routinely ignore constitutional limits on their power and depriv[e] their citizens of basic rights and freedoms" (Zakaria

[6] Tranparency International (2002) ranks 102 countries in a Corruption Perceptions Index (CPI). The last 10, beginning with TI's list of the most corrupt, are Bangladesh, Nigeria, Paraguay, Madagascar, Angola, Kenya, Indonesia, Azerbaijan, Uganda, and Moldova. The top 10, beginning with TI's least corrupt, are Finland, Denmark, New Zealand, Iceland, Singapore, Sweden, Canada, Luxembourg, Netherlands, and the United Kingdom. The United States ranks 16th. Luhnow and de Cordoba (2004: A1) indicate that the average household in Mexico, which ranks 64th from the top in TI's CPI in 2003, pays 7 percent of annual income on bribes for public services.

1997:22). Strongmen in these illiberal democracies create electoral rules of the game to divide, coopt, and subdue the opposition; maintain private armed forces and death squads; and detain political opponents in ways that distort democratic institutions (Zakaria 1997; Joseph 1998; Barkan and Ng'ethe 1998; Gyimah-Boadi 1998).

Clientalism or patrimonialism, the dominant pattern in Africa and South and Southeast Asia, is a personalized relationship between patrons and clients, commanding unequal wealth, status, or influence, based on conditional loyalties and involving mutual benefits. For Sandbrook and Oelbaum (1997), patrimonialism is associated with the power of government used to reward the **rent-seeking** behavior of political insiders, the ruler's acquiescence in the misappropriation of state funds and the nonpayment of taxes by political cronies, the distribution of state jobs by political patrons to followers (with corresponding incompetence, indiscipline, and unpredictability in government positions), and the nonexistence of the rule of law.[7]

Whereas "even at its best, liberal democracy is inimical to . . . people having effective decisionmaking power," Claude Ake (1996:42, 130) argues that in many low-income countries, the state tends to become privatized, appropriated by the political elite.

Amid state building, Sandbrook (2002:158–159) contends that democratization, the movement from authoritarian to democratic rule, is a highly disruptive process. Democratization, the process of getting to stable democracy, can trigger conflicts "to manifest themselves freely, but without the restraints of the checks and balances, and of agreement on the basic rules that regulate conflict" (Ottaway 1995:235–236). Democratic contestation can heighten interethnic mistrust, animosity, and polarization, contributing to political instability. However, one-party and military governments are even less adept than newly democratizing states at avoiding ethnic conflict. Moreover, democracies can manage ethnic divisions, facilitating compromise, inclusion, and cooperation across cleavages, if its institutions encourage consensual governance rather than "winner-take-all" approaches (Sandbrook 2002:154–155,160–161). For Atul Kohli (1997:325), the key is for democracies to accommodate movements for communal or ethnic self-determination. Although mobilized groups in a well-established democratic state with firm but accommodating leaders are likely to confront state authority, "such movements eventually decline as exhaustion sets in, some leaders are repressed, others are co-opted, and a modicum of genuine power sharing and mutual accommodation between the movement and the central state authorities is reached" (ibid., p. 326).

Sandbrook and Oelbaum (1997:643–646), although conceding that "institutional performance is shaped by traditions established over many years," contend that donor pressure for liberalization and democratic governance, even with deeply rooted patrimonialism, may facilitate the gradual institutional change essential to support

[7] Brandt and Turner (2003) show that Chinese village-level elections, even when corruptible, reduce rent seeking. Yet the widespread absence of rule of law in China could eventually limit its rapid growth and internal political stability.

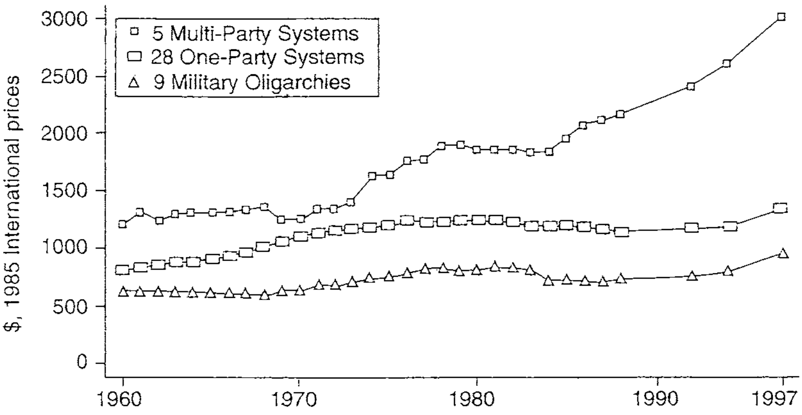


FIGURE 4-4. Real GDP per Capita by Political Regime (© American Economic Association). *Note:* Forty-seven countries of sub-Saharan Africa are classified according to their political regime in 1988. Two are the "settler oligarchies" of Namibia and South Africa and eight (Djibouti, Equatorial Guinea, Ethiopia, Liberia, Sao Tome, Sierra Leone, Somalia, and Sudan) lack data. The 37 for which there are data are divided into the following:

Multiparty systems: Botswana, Gambia, Mauritius, Senegal, Zimbabwe.

Military oligarchies: Burkina Faso, Burundi, Chad, Ghana, Guinea, Lesotho, Mauritania, Nigeria, and Uganda.

Plebiscitary one-party systems: Angola, Benin, Cape Verde, Comoros, Congo, Gabon, Guinea-Bissau, Kenya, Mozambique, Niger, Swaziland, and Zaire.

Competitive one-party systems: Cameroon, Central African Republic, Côte d'Ivoire, Madagascar, Malawi, Mali, Rwanda, Seychelles, Tanzania, Togo, and Zambia.

Sources: Bratton and van de Walle 1997; Ndulu and O'Connell 1999:51.

economic development. In a democratic society, where power is dispersed and "there is rule of law, equal opportunity, accountability of power, and a leadership sensitive to social needs, primary group identities [and enmities] will be less appealing. In such circumstances, [economic collapse and civil war] are less likely to occur" (Ake 1997, p. ix).

Benno Ndulu and Stephen O'Connell (1999:51) classify 45 sub-Saharan countries by political regime in 1988 (excluding settler oligarchies of Namibia and South Africa): multiparty systems, one-party systems, and military oligarchies. Ndulu and O'Connell show that, in total, the five multiparty systems – Botswana, Gambia, Mauritius, Senegal, and Zimbabwe – started out richer (in 1960) and grew rapidly, expanding their advantage in real GDP per capita over time (Figure 4-4). Although one-party regimes, whether competitive or plebiscitary, grew in the 1960s, they barely increased after 1970. Finally, military oligarchies started as the poorest of nations, and despite limited growth in the 1970s, have remained the poorest. To Ndulu and O'Connell, this reinforces the political scientist Seymour Martin Lipset's hypothesis (1959) of the correlation of economic development with democratic institutions (see also U.N. Development Program 2002:38–41, 57; Quinn 2003:248). Democracy is difficult to sustain where there is no accompanying economic development.

Ndulu and O'Connell (1999:52–53) emphasize the association of good governance with African growth and the neopatrimonial feature, or personalized patterns of authority and obligation, with African authoritarian regimes, and their resulting slow growth. Under neopatrimonial rulers, investment by African elites shifts from readily taxable forms toward mobile capital and even capital flight (Ndulu and O'Connell 1999:54–55). African political elites also prefer quantitative restrictions and licensing over price-based policies, because of the scope for targeting these benefits to favored parties.

The struggle over declining economic benefits affects the composition of ruling elites and the nature of patron–client patterns, thus potentially destabilizing the polity. In return, these changes in the political system may constrain policies toward economic growth and development.

RENT SEEKING

Economic rent is the payment above the minimum essential to attract the resource to the market. Rents "include not just monopoly profits, but also subsidies and transfers organized through the political mechanism, illegal transfers organized by private mafias, short-term super-profits made by innovators before competitor imitate their innovations, and so on" (Khan and Sundaram 2000:5).

Rent seeking is unproductive activity to obtain private benefit from public action and resources. This activity ranges from legal activity, such as lobbying and advertising, to illegal bribes or coercion (ibid.). The waste to society includes not only resource misallocation but also the costs of working to get the monopoly or special privilege (Tullock 2003), costs that are a substantial proportion of national income in many LDCs.[8]

All societies are subject to illegal and corrupt behavior. Wraith and Simpkins (1963) use the 19th-century United States and United Kingdom as case studies in their book, *Corruption in Developing Countries*. Even today, Western polities encounter companies contributing money and favors to skew policies, use of the state to favor powerful economic interests or destroy political opponents, efforts to cover up illicit use of government resources, and so forth.

But pervasive rent seeking occurs where the state is weak, decaying, venal, and lacking rule of law, primarily among low- and middle-income economies. "Weak and decaying" does not imply a benevolent ruler with a small military force. Indeed, political power backed by military coercion is usually a key resource for access to substantial rent seeking. Weak or soft LDCs are often authoritarian states, in which the authorities that decide policies rarely enforce them (if enacted into law) and only reluctantly place obligations on people (Myrdal 1968:2:895–900). These states are dependent on buying political support through concessions to powerful interest groups. In 1994, Nigeria's military government and its civilian allies expropriated "more than a thousand million dollars annually – equaling as much as 15 percent

[8] Kenya's legal system has been derided by Kenyans for decades. Some Kenyans joke: "Why hire a lawyer when you can buy a judge" (Economist 2003d:44).

of recorded government revenues – flow[ing] to smuggling networks and confidence teams, many of whom operated with connivance of top elites" (Lewis 1996:97). Human Rights Watch reports that toward the end of a 27-year war, $4 billion (10 percent of GDP) of oil revenue disappeared from Angolan government accounts, 1997–2002, from corruption and mismanagement. Although Angola is a leading oil producer, most of its people are poor (BBC 2004).

Many LDC ruling elites may not benefit from avoiding political decay through nurturing free entry and the rule of law and reducing corruption and exploitation. Instead, political leaders may gain more from extensive unproductive, profit-seeking activities in a political system they control than from long-term efforts to build a well-functioning state in which economic progress and democratic institutions flourish (Väyrynen 2000b:440; Keen 1998; Keen 2000). These activities tend to be pervasive in countries that have abundant mineral exports (for example, diamonds and petroleum), such as Sierra Leone, Angola, the People's Republic of Congo, and Liberia (De Soysa 2000:123–24), whereas predatory economic behavior is less viable in economies with few mineral exports such as India, Tanzania, and Togo, which have too limited resources for extensive rent seeking (Väyrynen 2000b:440–448).

Clientelism or patrimonialism, the dominant pattern in many LDCs, is a personalized relationship between patrons and clients, commanding unequal wealth, status, or influence, based on conditional loyalties and involving mutual benefits. For Max Weber (1978:1028–1029), "The patrimonial office lacks above all the bureaucratic separation of the 'private' and the 'official' sphere. For the political administration is treated as a purely personal affair of the ruler, and political power is considered part of his personal property which can be exploited by means of contributions and fees."

Clientelism overlaps with, but reaches beyond, ethnicity. The ethnic identity of the client may be amalgamated with, widened, or subordinated to the identity of the patron, who exchanges patronage, economic security, and protection for the client's personal loyalty and obedience. For Richard Sandbrook and Jay Oelbaum (1997:604–605), patrimonialism is associated with the power of government used to reward the rent-seeking behavior of political insiders, the ruler's acquiescence in the misappropriation of state funds and the nonpayment of taxes by political cronies, the distribution of state jobs by political patrons to followers (with corresponding incompetence, indiscipline, and unpredictability in government positions), and the nonexistence of the rule of law.

Clientelism often operates within a political party, as in Mexico's Institutional Revolutionary Party (PRI) in the 1990s (World Bank 2004f:6), *Parti Democratique de la Côte d'Ivoire* (PDCI), or in Nigeria's parties, 1960–66, 1979–83, 1999–. A democratically elected government, as Nigeria's second republic, 1979–83, may be patrimonial, with extensive rent seeking (see the discussion of prebendalism in Chapter 2).

Political institutional failure is characterized by **failed states** that provide virtually no public goods or services to their citizens. A weakening or decaying state is one experiencing a decline in the basic functions of the state, such as possessing authority and legitimacy, making laws, preserving order, and providing basic social services. A complete breakdown in these functions indicates a failing or collapsing state

(Holsti 2000:246–250; Zartman 1995:1–7). State failure, with an inability of state authorities to maintain public order, provides armed military and criminal groups the opportunity to seize power. The paucity of public resources exacerbates the people's suffering (Väyrynen 2000:451), although not the rulers or warlords, who usually use their abundant resources for private militias and splendor.

In a weak or failed state, some rulers, warlords, and traders profit more from political disorder than from order.[9] War and violence may be rational for the powerful few, providing cover for crimes that benefit the perpetuators economically. The objectives of war are not winning but economic benefits (Keen 2000:284–304). As pointed out in Chapter 6, a failed state, a form of grand corruption or pervasive rent seeking, is highly correlated with economic stagnation.

INSECURE PROPERTY RIGHTS

A major institution associated with development is laws and mores pertaining to the rights of property owners and users. By providing insights to this truth, Hernando de Soto, Director, the Institute of Liberty and Democracy, Lima, Peru, who "has scarcely published an article in an academic journal, has had a major impact on development economics" (Woodruff 2001:1215). De Soto's *Mystery of Capital* (2000) attributes the success of the West during the last 100 years and Japan in the last 50 years to legally enforceable property titling, based on painstaking accrual of law written by legislatures and consistent with the social contract, that is, the laws and principles of political right that people live by.[10] "One of the most important things a formal property system [similar to that of the West] does is transform assets from a less accessible condition to a more accessible condition, so that they can do additional work. . . . By uncoupling the economic features of an asset from their rigid, physical state, a representation makes the asset 'fungible' – able to be fashioned to suit practically any transaction" (de Soto 2000:56). Whereas an asset such as a factory may be indivisible, the concept of formal property enables Western citizens to "split most of their assets into shares, each of which can be owned by different persons, with different rights, to carry out different functions [so that] a single factory can be held by countless investors" (ibid., p. 57).

In LDCs, however, de Soto indicates (ibid., pp. 6–7, 30–54), most potential capital assets are dead capital, unusable under the legal property system, and inaccessible as collateral for loans or to secure bonds. Formal credit markets do not exist for most LDC business owners and residents. De Soto estimates dead (or informal) capital in the five-sixths of the world without well-established property rights as $9.34 trillion, about $4,100 for every LDC citizen. Even the critic Christopher Woodruff's (2001:1215–1221) conservative estimate of $3.6 trillion represents substantial capital that could be "unlocked" by clear property rights.

[9] In Somalia, some business people thrived on the lack of taxes and regulations in the ungoverned state of the 1990s, whereas others sought a return of state services and the rule of law. Regardless, daily life goes on amid state collapse (Little 2003:124–125).

[10] Law is to be discovered not enacted, so that de Soto (2000:162, 178), strolling through Indonesian rice fields, could determine property boundaries by listening to the barking dogs!

De Soto (2000:20–21) provides this example: "In Egypt, the person who wants to acquire and legally register a lot on state-owned desert land must wend his way through at least 77 bureaucratic procedures at thirty-one public and private agencies. . . . This can take anywhere from five to fourteen years. To build a legal dwelling on former agricultural land would require six to eleven years of bureaucratic wrangling, maybe longer. This explains why 4.7 million Egyptians have chosen to build their dwellings illegally. If after building his home, a settler decides he would not like to be a law-abiding citizen and purchase the rights to his dwelling, he risks having it demolished, paying a steep fine, and serving up to ten years in prison."

De Soto (2000:86) notes the explosion of LDC extralegal activity, with rural squatters and "sprawling illegal cities – Peru's *pueblos jóvenes*, Brazil's *favelas*, Venezuela's *ranchos*, Mexico's *barrios marginales*, and the *bidonvilles* of the ex-French colonies as well as the shantytowns of the former British ones." These are not just surges of population or poverty but people stepping "outside the law because they [are] not allowed inside. In order to live, trade, manufacture, transport, or even consume, the cities' new inhabitants had to do so extralegally" (ibid., p. 87).

What does de Soto recommend? "The poor can gain access to capital if they are given formal property rights, i.e. legal title to the property that they actually possess. Legal title gives property-owners greater access to credit by using their property as collateral, thereby 'unlocking' their capital and enabling them to invest, or considerably deepen their investment, in their own businesses. In the countryside farmers could increase their agricultural productivity; in the cities, urban-dwellers could buy equipment to establish themselves in . . . trade, for example, or expand their activities in the service sector" (review of *Mystery* by Roy Culpeper, President, Ottawa, Canada's North-South Institute 2002).

Earlier in the chapter, I mentioned the **informal sector**, in which artisans, cottage industrialists, petty traders, tea shop proprietors, hawkers, street vendors, shoe shiners, street entertainers, garbage pickers, jitneys, unauthorized taxis, repair persons, and other self-employed, sometimes with a few apprentices, family workers, and employees, generate employment and income for themselves in activities with little capital, skill, and entry barriers. Whereas the urban informal sector is teeming with entrepreneurs, few become major engines of growth for the LDC industrial economy. De Soto's explanation is that these small enterprises face an iron ceiling to growth: no legal title to property means lack of access to credit and secure expansion.

Additionally, the lack of secure property rights for farmland hampers the development of countries undergoing transition from communism to capitalism. In China, agricultural productivity increased substantially from 1979 to 1984 during the change from collectives to a **household responsibility system**, enabling long-term land contracts for family farms. However, after 1984, agricultural growth decelerated partly because farmers, based on previous policy volatility, feared a reversal in land tenure, becoming reluctant to invest and innovate (see Chapter 19).

Although in Russia, people can buy and sell farm land, the authorities have only privatized some and reformed even fewer collective and state farms left from the

Soviet period. The Communist Party and its allies in the legislature (Duma) supported much of the rural population, satisfied with its wage security, in its opposition to privatization. Yet maintaining state ownership hurt Russia's agricultural economy, as wages on state farms exceeded its output, when valued at world market prices.

Ethiopia has had state ownership of land since 1974, when Hailie Selassie's feudal regime was overthrown. Ethiopian cultivators have been vulnerable to recurring famine, largely because of insecure land use rights. Land reform based on small-farm private agriculture, together with the dissemination of improved technologies and investment in infrastructure and farmer education, would increase productivity and reduce the risk of famine (Berry 2002:112).[11]

Inadequate property and use rights for traditional systems. Property rights usually assign the rights to and rewards from using resources to individuals, thus providing incentives to invest in resources and use them efficiently. Given the high cost of supervising agricultural wage labor, clearly allocating land rights to owner-operators generally increases the efficiency of farm production (Binswanger and Deininger 1997). Chapter 7, however, argues that private property rights may not always produce the most efficient farming arrangements where information costs are high and markets for finance and insurance imperfect (ibid.).

Conclusion

Although LDCs are diverse, they have some common characteristics that especially apply to low-income countries. Low-income economies tend to have a high percentage of production and labor force in agriculture, low savings rates and technology, relatively rapid population growth, relatively low literacy and skills, and poorly developed institutions. Although a disproportional proportion is not democratic, their political systems vary. Some lose substantial savings and income from widespread rent seeking, acquiring private benefits from public resources. A few, especially in sub-Saharan Africa, are failed states, providing virtually no public goods or services to their people.

Despite this bleak portrait, LDCs generally have raised real incomes, reduced poverty, increased life expectancy, lowered infant mortality, improved literacy and educational access, narrowed gender disparities, and decelerated population growth, especially in the last half century. The remaining chapters elaborate on patterns of progress and regress, discussing development theories, poverty and inequality,

[11] Le'once Ndikimana (1998:30) indicates that Burundi's civil war and genocide in the mid-1990s contributed to production disruptions that have reduced GDP per capita below its 1978 level. This political and economic collapse was the result of a massive institutional failure that prevented "economizing, reducing risk and uncertainty, and distributing wealth" (ibid., p. 39). Ndikimana discusses the legal, judicial, and other institutional change essential for Burundi to get rid of the "monopolization of the state [that] weakens its ability to enforce and protect property right" (ibid., p. 40). Nafziger and Auvinen (2003:77–79, 134, 150–153) examine how land disputes contributed to the interrelated humanitarian disasters in Burundi and neighboring Rwanda in the 1990s.

factors of production, technical progress, investment choice, education, employment, macroeconomic and international economic policies, and economic reform and adjustment.

TERMS TO REVIEW

- capital stock
- civil society
- clientalism
- democratization
- dual economy
- European Union accession countries
- export commodity concentration ratio
- extended family
- failed states
- household responsibility system
- informal sector
- institutions
- inverted U-shaped curve
- nongovernmental organizations (NGOs)
- peasants
- political elite
- prebendalism
- predatory (neopatrimonial) rulers
- primary products
- property rights
- rent seeking
- social capital
- sustained development
- transparency
- value-added taxes (VAT)
- World Trade Organization (WTO)

QUESTIONS TO DISCUSS

1. What are some common characteristics of LDCs? Which of these characteristics are causes and which accompaniments of underdevelopment?
2. How might today's LDCs differ from those of the 1950s?
3. How might a list of common characteristics of low-income countries vary from that of LDCs as a whole?
4. How do production and labor force shares in agriculture, industry, and services change as GNP per capita increases? Have production and labor force proportions for low-and high-income economies changed from 1977 (Figure 4-1) to the present?
5. What is a dual economy? Are all LDCs characterized by economic dualism?
6. Will the skill composition of the labor force change as rapidly in LDCs as it did in the past in DCs?
7. What are the major characteristics of economic and political institutions in low-income economies?
8. What are the major institutional changes that take place with economic development? Are these institutional changes causes or mere correlations of growth? Or is growth a cause of institutional change?

GUIDE TO READINGS

The World Bank's *World Development Indicators, World Development Report*, and *World Bank Atlas* and the U.N.'s *Human Development Report* have information on

industrial structure, literacy and education, and other LDC traits. The World Bank's annual *Global Economic Prospects* and UNCTAD's *Trade and Development Report* have data on trade patterns. The Guide to Chapter 2 has details on statistical sources that present data on the characteristics of LDCs. Population sources are listed in the Guide to Chapter 8.

Although parts of Chenery and Syrquin (1975) and Kuznets (1971: Chapter 3) are out of date, they contain useful data on growth patterns. Chenery, Robinson, and Syrquin (1986) and Syrquin (1988:203–273) discuss structural change.

The best-known model of the dual economy is that of Lewis (1954:139–191), discussed in Chapter 5.

Huntington (1968), although somewhat dated, is a standard work on the politics of LDCs. Critics of Huntington's approach are Cruise O'Brien (1972:353–80) and Nardin (1971).

North (1990) is a major work on the effect of economic and political institutions on economic development; Platteau (2000) writes on institutions, social norms, and economic development. Meier (2000:421–515) has readings on institutions and political economy. See also Lin and Nugent (1995) on institutions.

De Soto (2000), Binswanger and Deininger (1997), and Landau (2003:217–235) emphasize legally enforceable property rights, but Binswanger, Deininger, and Feder (1995:2659–2772) and Cornia (1994) warn against abrupt titling on demand without considering the traditional use rights of local communities (see Chapter 7).

The World Bank (2003i:38) has a diagram explaining social capital, and World Bank (2001h:124–131) analyzes how social capital affects development. Three papers in *Economic Journal* (2002:F417–F479) analyze social capital, a controversial topic. Economists differ on the meaning of the term, with some "equat[ing] social capital with trust and trustworthiness whereas others . . . regard social capital as a form of social networks" (Durlauf 2002: F417). Social capital increases cooperation and reduces opportunism and the need for expensive legal precautions in economic transactions (Nooteboom 2002:3). Glaeser, Laibson, and Sacerdote (2002:F437–F458) examine social capital as an individual's social skills, charisma, and social interactions (the "size of his Rolodex"), thus eschewing aggregate approaches. They find (ibid.) that social capital rises then falls with age, is community specific, thus declining with emigration, rises in occupations with greater social skills, is higher among homeowners, falls sharply with physical distance, and is correlated with investment in human capital. The Nobel laureate Kenneth Arrow (2000), however, suggests that the concept "social capital" be abandoned in favor of the study of alternative forms of social interactions. The management scholar Nooteboom (2002) identifies trust as the oil that lubricates interaction between people and reduces transaction costs.

Tullock (1967) is one of the first to write on rent seeking without, however, using the term. Krueger (1974:291–302), whose emphasis was on the cost of government restrictions to economic activity, coined the term "rent seeking," being a more widely used term than Bhagwati's "directly unproductive profit seeking" (1982). Gallagher (1991:55) broadens Krueger's concept to include "not only the traditional waste of resources devoted to attaining rents but also similar instances where resources are

devoted to seeking profit or generating government revenues without adding to the flow of goods and services." My definition of rent seeking is close to Bhagwati's and Gallagher's broader definition although I retain Krueger's term. Khan and Sundaram (2000) examine rent seeking and economic development in Asia.

Mancur Olson (2000) discusses the power of the Mafia, the stationary bandit, the roving bandit, and the autocrat in an economic framework.

Transparency International (2003), published annually, ranks business peoples' perceptions of 102 countries, from least to most corrupt. Miles, Feulner, and O'Grady, *2004 Index of Economic Freedom*, weighs such factors as trade policy, fiscal burden, government intervention, monetary policy, capital flows, banking and finance, wages and prices, property rights, regulation, and informal markets. In 2004, Hong Kong ranked #1, the United States #10, and Chile ranked #13 – highest among developing countries.

Zartman (1995), Väyrynen (2000b:437–479), and Reno (2000:43–68) discuss the concept of the failed or shadow state. McGuire and Olson (1996:72–96) examine the limits that self-interested predatory rulers or stationary bandits can extract from their population.

5 Theories of Economic Development

To many people, a theory is a contention that is impractical or has no factual support. Someone who says that free migration to the United States may be all right in theory but not in practice implies that, despite the merit of the idea, it would be impractical. Likewise, the statement that the idea of lower wealth taxes in India stimulating economic growth is just a theory indicates an unverified hypothesis.

For the economist, however, a **theory** is a systematic explanation of interrelationships among economic variables, and its purpose is to explain causal relationships among these variables. Usually a theory is used not only to understand the world better but also to provide a basis for policy. In any event, theorists cannot consider all the factors influencing economic growth in a single theory. They must determine which variables are crucial and which are irrelevant. However, reality is so complicated that a simple model may omit critical variables in the real world (Kindleberger and Herrick 1977:40). And although complex mathematical models can handle a large number of variables, they have not been very successful in explaining economic development, especially in the third world.

Scope of the Chapter

This chapter discusses a few of the major theories of economic development, reserving for subsequent chapters less comprehensive theories dealing with specific economic questions. As they did in the 1950s and 1960s, economists recently have stressed all-encompassing theories of development, including neoclassicism and rival theories.

The first two models with some application to LDCs today – those of the English classical economists, and of their foremost critic, Karl Marx – were developed in the 19th century during the early capitalist development in Western Europe and the United States. The next theories include Walter Rostow's model – written as an alternative to Marx's theory of modern history – which sets forth five stages of economic growth for LDCs, based on DC experience; the vicious circle theory, focusing on LDC low saving rates; and the debate on preventing coordination failures, including balanced versus unbalanced growth, which clarifies issues concerning the "big push," economies of scale, complementarities, and differential productivity. The Lewis–Fei–Ranis model views the accumulation of capital by profits from the industrial capitalist sector hiring an unlimited supply of surplus labor from agriculture as the impetus to economic growth in LDCs. Paul Baran's coalitions model draws

on Marx's historical dynamics and Lenin's theory of imperialism to analyze economic backwardness in Asia, Africa, and Latin America. In addition, dependency theory, which borrows from Baran's approach, argues that underdevelopment in third-world countries results from their participation in the international capitalist system.

During the 1980s and 1990s, a period of economic conservative governments in much of the West and Japan, a leading approach among development economists was **neoclassicism**, an economic theory and policy that stressed freedom from the state's economic restraint. Neoclassical economists dominate the two most powerful international financial agencies in developing countries, the World Bank and International Monetary Fund. Neoclassicism also includes a formal growth theory, which emphasizes the importance of capital formation for economic growth. The fact that the neoclassical growth theory assumed perfect competition and had no explanation for the level of technology within the model motivated other economists to propose an endogenous growth theory in which technical progress, the chief source of growth, was explained within the model.

The Classical Theory of Economic Stagnation

MODEL

The **classical theory**, based on the work of the 19th-century English economist David Ricardo, *Principles of Political Economy and Taxation* (1817), was pessimistic about the possibility of sustained economic growth. For Ricardo, who assumed little continuing technical progress, growth was limited by land scarcity.

The classical economists – Adam Smith, Thomas R. Malthus, Ricardo, and John Stuart Mill – were influenced by Newtonian physics. Just as Newton posited that activities in the universe were not random but subject to some grand design, these men believed that the same natural order determined prices, rent, and economic affairs.

In the late 18th century, Smith argued that in a competitive economy, with no collusion or monopoly, each individual, by acting in his or her own interest, promoted the public interest. A producer who charges more than others will not find buyers, a worker who asks more than the going wage will not find work, and an employer who pays less than competitors will not find anyone to work. It was as if an **invisible hand** were behind the self-interest of capitalists, merchants, landlords, and workers, directing their actions toward maximum economic growth (Smith 1937, first published 1776). Smith advocated a **laissez-faire** (governmental noninterference) and free-trade policy except where labor, capital, and product markets are monopolistic, a proviso some present-day disciples of Smith overlook.

The classical model also took into account (1) the use of paper money, (2) the development of institutions to supply it in appropriate quantities, (3) capital accumulation based on output in excess of wages, and (4) division of labor (limited primarily by the size of the market). A major tenet of Ricardo was the **law of diminishing returns**, referring to successively lower extra outputs from adding an equal extra input to fixed land. For him, diminishing returns from population growth and a constant amount of

land threatened economic growth. Because Ricardo believed technological change or improved production techniques could only temporarily check diminishing returns, increasing capital was seen as the only way of offsetting this long-run threat.

His reasoning took the following path. In the long run, the natural wage is at subsistence – the cost of perpetuating the labor force (or population, which increases at the same rate). The wage may deviate but eventually returns to a natural rate at subsistence. On the one hand, if the wage rises, food production exceeds what is essential for maintaining the population. Extra food means fewer deaths, and the population increases. More people need food and the average wage falls. Population growth continues to reduce wages until they reach the subsistence level once again. On the other hand, a wage below subsistence increases deaths and eventually contributes to a labor shortage, which raises the wage. Population decline increases wages once again to the subsistence level. In both instances, the tendency is for the wage to return to the natural subsistence rate.

With this **iron law of wages**, total wages increase in proportion to the labor force. Output increases with population but, other things being equal, output per worker declines with diminishing returns on fixed land. Thus, the surplus value (output minus wages) per person declines with increased population. At the same time, land rents per acre increase with population growth, as land becomes scarcer relative to other factors.

The only way of offsetting diminishing returns is by accumulating increased capital per person. However, capitalists require minimum profits and interest payments to maintain or increase capital stock. Yet because profits and interest per person declines and rents increase with population growth, there is a diminishing **surplus** (profits, interest, and rent) available for the capitalists' accumulation. Ricardo feared that this declining surplus reduces the inducement to accumulate capital. Labor force expansion leads to a decline in capital per worker or a decrease in worker productivity and income per capita. Thus, the Ricardian model indicates eventual economic stagnation or decline.

CRITIQUE

Paradoxically, the stagnation theory of Ricardo was formulated amid numerous scientific discoveries and technical changes that multiplied output. Clearly, he underestimated the impact of technological advance in offsetting diminishing returns. The steam engine (1769), the spinning jenny (1770), the Arkwright water frame (1771), the puddling process for making wrought iron (1784), the power loom (1785), the cotton gin (1793), interchangeable parts (1798), improved soil tillage and improved breeds of livestock (around 1800), the steamboat (1807), the water mill for powering factories (1813), and the three-piece iron plow (1814) were all developed before he wrote his theory. Since Ricardo's time, rapid technological progress contributed to unprecedented economic growth.[1] Furthermore, the iron law of wages did not

[1] Some 20th-century economists, culminating with Meade (1963), have added a variable reflecting technical progress while retaining most of the classical premises.

foresee the extent to which population growth could be limited, at least in the West, through voluntary birth control.

Moreover, it did not occur to Ricardo that private ownership of land and capital is not an economic necessity. Land and capital would still be used even if rents and interest were not paid, as in state ownership of these means of production. Ironically, Ricardian stagnation might result in a Marxian scenario, in which wages and investment would be maintained only if property were confiscated by society and payments to private capitalists and landlords stopped (Enke 1963:70–90).

As discussed later in this chapter, contemporary neoclassical economists take the classical stress on savings, free trade, and freedom from government restriction, and add an emphasis on technological change as an important component of economic growth. These ideas are major features of the neoclassical theory of growth, a dominant present-day theory of economic growth.

Marx's Historical Materialism

Karl Marx's views were shaped by radical changes in Western Europe: the French Revolution; the rise of industrial, capitalist production; political and labor revolts; and a growing secular rationalism. Marx (1818–83) opposed the prevailing philosophy and political economy, especially the views of utopian socialists and classical economists, in favor of a worldview called **historical materialism**.

THEORY

Marx wanted to replace the unhistorical approach of the classicists with a historical dialectic. Marxists consider classical and later orthodox economic analysis as a still photograph, which describes reality at a certain time. In contrast, the dialectical approach, analogous to a moving picture, looks at a social phenomenon by examining where it was and is going and its process of change. History moves from one stage to another, say, from feudalism to capitalism to socialism, on the basis of changes in ruling and oppressed classes and their relationship to each other. Conflict between the forces of production (the state of science and technology, the organization of production, and the development of human skills) and the existing relations of production (the appropriation and distribution of output as well as a society's way of thinking, its ideology, and worldview) provide the dynamic movement in the materialist interpretation of history. The interaction between forces and relations of production shapes politics, law, morality, religion, culture, and ideas.

Accordingly, feudalism is undercut by (1) the migration of serfs to the town; (2) factory competition with handicraft and manorial production; (3) expanded transport, trade, discovery, and new international markets on behalf of the new business class; and (4) the accompanying rise of nation-states. The new class, the proletariat or working class, created by this next stage, capitalism, is the seed for the destruction of capitalism and the transformation into the next stage, socialism. Capitalism faces repeated crises because the market, dependent largely on worker

consumption, expands more slowly than productive capacity. Moreover, this unutilized capacity creates, in Marx's phrase, a **reserve army of the unemployed**, a cheap labor source that expands and contracts with the boom and bust of business cycles. Furthermore, with the growth of monopoly, many small businesspeople, artisans, and farmers become propertyless workers who no longer have control over their workplaces. Eventually the proletariat revolts, takes control of capital, and establishes socialism. In time, socialism is succeeded by communism, and the state withers away.

Marx's ideas were popularized by his collaborator, Friedrich Engels, especially from 1883 to 1895, when he finished Marx's uncompleted manuscripts, interpreted Marxism, and provided its intellectual and organizational leadership.

From the late 19th century through the first three-quarters of the 20th century, Socialist, Social Democratic, and Labor parties in Western Europe have tried to introduce socialism through parliamentary democracy rather than violent revolution. Since the 1970s and 1980s, however, these parties, some with Marxist origins, have limited their goals to a welfare state, social market capitalism, or social reform under capitalism.

CRITIQUE

Marx's main analysis was of capitalism, but his discussions of socialism and communism were not well developed. Even his analysis of capitalism, and the transition to socialism, had a number of flaws. He had theorized worker revolt in the industrialized West, but the revolution occurred first in Russia, one of the least developed capitalistic countries in Europe.

Marxists suggest several reasons why Western workers have yet to overthrow capitalism. Having realized the dangers of a rebellious working class at home, the capitalists have developed a tactic of divide and rule that depends on exploitation of workers outside the West. Furthermore, the news media, educational institutions, and churches create a false consciousness supporting ruling-class ideologies. And the capitalist state has powerful legal, police, military, and administrative machinery to quell potential resistance.

Marx also overlooked the possibility that the interests of workers and capitalists might not conflict. Thus, workers in the West may have supported capitalism because they gained more in the long run by receiving a relatively constant share of a rapidly growing output than by trying to acquire a larger share of what might have been a more slowly growing output under an alternative system.

Regardless of how we view Marxism, it remains a rallying point for discontented people. The irony is that nationalist groups that overthrow their rulers in the name of Marxism are frequently threatened by class antagonisms from those they rule. Almost no other socialist government is willing to go as far as the late Chairman Mao Zedong of China, who recognized the existence of classes under socialism, and called for a continuing revolution to oppose the encrusted, socialist, upper classes. Other theorists have revised or added to Marxism, including

Paul Baran and the dependency theorists. We consider these views in later sections of this chapter.

Rostow's Stages of Economic Growth

People existed for centuries with little change in their economic life. When major changes occurred, as in the last 500 years or so, they often took place abruptly. In *The Stages of Economic Growth* (1961), Walter W. Rostow, an eminent economic historian, sets forth a new historical synthesis about the beginnings of modern economic growth on six continents.

FIVE STAGES

Rostow's economic stages are (1) the traditional society, (2) the preconditions for takeoff, (3) the takeoff, (4) the drive to maturity, and (5) the age of high mass consumption.

Rostow has little to say about the concept of traditional society except to indicate that it is based on attitudes and technology prominent before the turn of the 18th century. The work of Isaac Newton ushered in change. He formulated the law of gravity and the elements of differential calculus. After Newton, people widely believed "that the external world was subject to a few knowable laws, and was systematically capable of productive manipulation" (Rostow 1961:4).

PRECONDITIONS STAGE

Rostow's **preconditions stage** for sustained industrialization includes radical changes in three nonindustrial sectors: (1) increased transport investment to enlarge the market and production specialization; (2) a revolution in agriculture, so that a growing urban population can be fed; and (3) an expansion of imports, including capital, financed perhaps by exporting some natural resources. These changes, including increased capital formation, require a political elite interested in economic development. This interest may be instigated by a nationalist reaction against foreign domination or the desire to have a higher standard of living.

TAKEOFF

Rostow's central historical stage is the **takeoff**, a decisive expansion occurring over 20 to 30 years, which radically transforms a country's economy and society. During this stage, barriers to steady growth are finally overcome, while forces making for widespread economic progress dominate the society, so that growth becomes the normal condition. The takeoff period is a dramatic moment in history, corresponding to the beginning of the Industrial Revolution in late-18th-century Britain; pre–Civil War railroad and manufacturing development in the United States; the period after the 1848 revolution in Germany; the years just after the 1868 Meiji restoration in Japan; the rapid growth of the railroad, coal, iron, and heavy engineering industries in the quarter-century before the 1917 Russian Revolution; and a period starting

within a decade of India's independence (1947) and the communist victory in China (1949).

Rostow indicates that three conditions must be satisfied for takeoff.

1. Net investment as a percentage of net national product (NNP) increases sharply – from 5 percent or less to over 10 percent. If an investment of 3.5 percent of NNP leads to a growth of 1 percent per year, then 10.5 percent of NNP is needed for a 3-percent growth (or a 2-percent per-capita increase if population grows at 1 percent).
2. At least one substantial manufacturing sector grows rapidly. The growth of a leading manufacturing sector spreads to its input suppliers expanding to meet its increased demand and to its buyers benefiting from its larger output. In the last three decades of the 1700s, for example, the cotton textile industry in Britain expanded rapidly because of the use of the spinning jenny, water frame, and mule in textiles and the increased demand for cotton clothing. The development of textile manufactures, and their exports, had wide direct and indirect effects on the demand for coal, iron, machinery, and transport. In the United States, France, Germany, Canada, and Russia, the growth of the railroad, by widening markets, was a powerful stimulus in the coal, iron, and engineering industries, which in turn fueled the takeoff.
3. A political, social, and institutional framework quickly emerges to exploit expansion in the modern sectors. This condition implies mobilizing capital through retained earnings from rapidly expanding sectors; an improved system to tax high-income groups, especially in agriculture; developing banks and capital markets; and, in most instances, foreign investment. Furthermore, where state initiative is lacking, the culture must support a new class of entrepreneurs prepared to take the risk of innovating.

DRIVE TO MATURITY

The drive to maturity, a period of growth that is regular, expected, and self-sustained, follows takeoff. A labor force that is predominantly urban, increasingly skilled, less individualistic, and more bureaucratic and looks increasingly to the state to provide economic security characterizes this stage.

AGE OF HIGH MASS CONSUMPTION

The symbols of this last stage, reached in the United States in the 1920s and in Western Europe in the 1950s, are the automobile, suburbanization, and innumerable durable consumer goods and gadgets. In Rostow's view, other societies may choose a welfare state or international military and political power.

CRITIQUE

Rostow's theory was the vogue among many U.S. government officials in the 1960s, especially in the international aid agencies, because it promised hope for sustained growth in LDCs after substantial initial infusions of foreign assistance. But among

scholars, Rostow's work met with, at best, mixed reviews. Rostow is accused of over-ambition. Ian Drummond complains that "probably no theory has been so widely circulated from so slight a base of organized fact and careful analysis" (Drummond 1961:112–113).

Another economic historian, A. K. Cairncross (1961:454), argues that one can believe in an abrupt takeoff, or industrial revolution, only if one's knowledge of history is flimsy and out of date. Cairncross argues that many of Rostow's conditions are defined so vaguely that they stretch to cover any case and he seems only too willing to admit exceptions when takeoff occurs at a time other than his theory suggests.

Indeed, Rostow's stages, imprecisely defined, are difficult to test scientifically. For a theory to be meaningful, it must be possible to prove it wrong. If the stages are to explain how economic development is caused, the relationships cannot be circular. The stages must be defined in terms other than economic development, the variable the theory is trying to explain. For example, the concepts of *traditional society* and *high mass consumption society* define rather than explain reasons for the level of economic development. Furthermore, past economies – primitive, ancient, medieval, and those of the presently developed countries of a century or two ago – are all grouped with presently underdeveloped countries in a single category, the traditional society.

The designation of traditional societies as pre-Newtonian neglects the dualism of many present-day LDCs. Much of the large manufacturing, plantation, and mining sectors of India, Indonesia, Nigeria, and Pakistan use modern methods and techniques and cannot be considered traditional in Rostow's sense.

Much of Rostow's thesis about conditions for takeoff is contradicted by empirical data. Increases in investment rates and growth do not occur in the 20–30 year span Rostow designates for takeoff. Growth in investment rates and net national product in Great Britain, Germany, Sweden, and Japan indicate a slow and relatively steady acceleration rather than an abrupt takeoff.

Frequently, the characteristics of one of Rostow's stages are not unique to it. Why would the agricultural revolution, capital imports, and social overhead investment of the preconditions stage not be consistent with the abrupt increase in investment rates during the takeoff stage? Why could the development of leading sectors or the emergence of an institutional framework exploiting growth not take place in the preconditions stage as well as the takeoff stage? Why would the abrupt increase in growth and investment rates during takeoff not continue through the drive to maturity?

Unlike Marx's dialectical materialism, Rostow's approach does not show how the characteristics and processes of one stage move a society to the next stage. How do we explain the relatively effortless self-sustained growth after takeoff? Presumably, some obstacles to growth have been removed. What are they, and how does his theory explain their removal?

Rostow's premise that economic modernization implies a change from an underdeveloped economy to one similar to those in North America and Western Europe today poses another problem. Rostow compares LDCs at independence to the formation of nation-states in the West. He assumes that the development of underdeveloped

countries will parallel earlier stages of today's advanced countries, but he neglects the relationship of contemporary underdeveloped countries with developed countries as well as each LDC's highly individual history.

Rostow is ethnocentric when he chooses a high mass consumption society, characterized by automobiles, suburbanization, and consumer gadgets, as the culminating stage of economic growth. For him, today's modernized societies, the archetype of which is the United States, are an image of the future of traditional societies. Surely the study of comparative history should alert us to the danger of using the experience of the United States (or any other country) as a model for countries with very different cultural and political backgrounds to emulate.

Vicious Circle Theory

The **vicious circle** theory indicates that poverty perpetuates itself in mutually reinforcing vicious circles on both the supply and demand sides.

SUPPLY SIDE

Because incomes are low, consumption cannot be diverted to saving for capital formation. Lack of capital results in low productivity per person, which perpetuates low levels of income. Thus, the circle is complete. A country *is* poor because it *was previously* too poor to save and invest. Or as Jeffrey Sachs (2005:56) explains the poverty trap: "Poverty itself [is the] cause of economic stagnation."

Japan's high savings rates during periods of rapid economic growth during the 1950s, 1960s, and 1970s, and the high savings rates of the Asian tigers, Malaysia, and Thailand imply the other side of the coin of the vicious circle. As countries grow richer, they save more, creating a **virtuous circle** in which high savings rates lead to faster growth (Edwards 1995; Economist 1995b:72; World Bank 2003i:218–220).

DEMAND SIDE

Furthermore, because incomes are low, market size (for consumer goods such as shoes, electric bulbs, and textiles) is too small to encourage potential investors. Lack of investment means low productivity and continued low income. A country *is* poor because it *was previously* too poor to provide the market to spur investment.

Insufficient Saving: A Critique

The vicious circle theory seems plausible to those Westerners who imagine that the *entire* population of the third world is poor and hungry. They are surprised that anyone in the LDCs saves. But you can probably identify some flaws in these views. Westerners may be judging the saving potential in LDCs on the basis of Western standards of living. Of course, most Westerners find it difficult to imagine saving on the $8,000 annual salary received by a middle manager in India. But remember the relative position that $8,000 represents in India. There is reason for believing that low-income countries can save substantially more than they do. The highest income groups in low-income LDCs live far above subsistence levels. India's richest

10 percent receive about 34 percent of national income, an amount per head 9 to 10 times that of the poorest 10 percent of the people (World Bank 2003i:65). Because evidence indicates that consumption levels are determined less by absolute levels of income than by relative income (income in comparison to neighbors and members of the community), the higher income classes in LDCs could save considerably if they were sufficiently motivated. One reason they may not do so is because of the **demonstration effect** of consumption levels in the West and of elites in the LDCs. That is, people may spend beyond their income in order to keep up with the Joneses, the Sridhars, or the Abdullahis.

You also should keep in mind that personal saving is usually a small proportion of total saving in a LDC. Corporate saving, government saving, public enterprise profits, social security contributions, life insurance premiums, and provident and pension fund reserves may be other sources for saving (Nafziger 2006b).

If we look at saving from this broader viewpoint, there are additional arguments to suggest that poor countries have a substantial capacity to save. Throughout history, few societies have been too poor to wage war. Yet any war requires a share of the country's resources that would be sufficient for a significant rate of capital formation. 2.3 percent of GNP and 12.9 percent of central government expenditures of low-income countries go for military expenditures (World Bank 2003h:288). Perhaps if countries mobilized for economic development as they did for war, they could increase saving.

Furthermore, some poor societies have been able to build magnificent monuments. As A. K. Cairncross (1963) argues, "Anyone who looks at the pyramids, cathedrals, and pagodas that civilizations have bequeathed, can hardly regard the construction of railways, dams, and power stations as imposing an unprecedented burden on a poor community."

SMALL MARKETS: A CRITIQUE

Everett E. Hagen (1962:42–43) contends that the market is ample for using modern production methods effectively for products commonly consumed by low-income people – sugar, milled rice, milled flour, soap, sandals, textiles, clothing, cigarettes, matches, and candies. He argues that even a fairly small improvement in productivity for any of these commodities would capture a sizable market.

Moreover, large establishments require not only large markets but, more important, complex machinery and processes, which demand entrepreneurial, managerial, and technical skills and experience that are frequently scarce in developing countries. Hla Myint (1954:132–163) argues that cost advantages from early entry, or "economies of experience," are more important for large-scale production than economies of scale from increased market size.

Balanced Versus Unbalanced Growth

A major development debate from the 1940s through the 1960s concerned **balanced growth** versus **unbalanced growth**. Some of the debate was semantic, as the meaning

of *balance* can vary from the absurd requirement that all sectors grow at the same rate to the more sensible plea that some attention be given to all major sectors – industry, agriculture, and services. However, absurdities aside, the discussion raised some important issues. What are the relative merits of strategies of gradualism versus a big push? Is capital or entrepreneurship the major limitation to growth?

BALANCED GROWTH

The synchronized application of capital to a wide range of different industries is called balanced growth by its advocates. Ragnar Nurkse (1953) considers this strategy the only way of escaping from the vicious circle of poverty. He does not consider the expansion of exports promising, because the **price elasticity of demand** (minus percentage change in quantity demanded divided by percentage change in price) for the LDCs' predominantly primary exports is less than one, thus reducing export earnings with increased volume, other things being equal.

BIG PUSH THESIS

Those advocating this synchronized application of capital to all major sectors support the **big push thesis**, arguing that a strategy of gradualism is doomed to failure. A substantial effort is essential to overcome the inertia inherent in a stagnant economy. The situation is analogous to a car being stuck in the snow: It will not move with a gradually increasing push; it needs a big push.

For Paul N. Rosenstein-Rodan (1943:202–211), the factors that contribute to economic growth, such as demand and investment in infrastructure, do not increase smoothly but are subject to sizable jumps or **indivisibilities**. These indivisibilities result from flaws created in the investment market by **external economies**, that is, cost advantages rendered free by one producer to another. These benefits spill over to society as a whole, or to some member of it, rather than to the investor concerned. As an example, the increased production, decreased average costs, and labor training and experience that result from additional investment in the steel industry will benefit other industries as well. Greater output stimulates the demand for iron, coal, and transport. Lower costs may make vehicles and aluminum cheaper. In addition other industries may benefit later by hiring laborers who acquired industrial skills in the steel mills. Thus, the social profitability of this investment exceeds its private profitability. Moreover, unless government intervenes, total private investment will be too low.

Indivisibility in infrastructure. For Rosenstein-Rodan, a major indivisibility is in infrastructure, such as power, transport, and communications. This basic social capital reduces costs to other industries. To illustrate, the railroad from Kanpur to the Calcutta docks increases the competitiveness of India's wool textiles domestically and abroad. However, the investment for the 950-kilometer, Kanpur–Calcutta rail line is virtually indivisible, in that a line a fraction as long is of little value. Building the Aswan Dam or the Monterrey–Mexico City telegraph line is subject to similar discontinuities.

Indivisibility in demand. This indivisibility arises from the interdependence of investment decisions; that is, a prospective investor is uncertain whether the output from his or her investment project will find a market. Rosenstein-Rodan uses the example of an economy closed to international trade to illustrate this indivisibility. He assumes that there are numerous subsistence agricultural laborers whose work adds nothing to total output (that is, the marginal productivity of their labor equals zero). If 100 of these farm workers were hired in a shoe factory, their wages would increase income.

> If the newly employed workers spend all of their additional income on shoes they produce the shoe factory will find a market and would succeed. In fact, however, they will not spend all of their additional income on shoes. There is no "easy" solution of creating an additional market in this way. The risk of not finding a market reduces the incentive to invest, and the shoe factory investment project will probably be abandoned. (Rosenstein-Rodan 1951:62)

However, instead, let us put 10,000 workers in 100 factories (and farms) that among them will produce the bulk of consumer goods on which the newly employed workers will spend their wages. What was not true of the shoe factory is true for the complementary system of 100 enterprises. The new producers are each others' customers and create additional markets through increased incomes. Complementary demand reduces the risk of not finding a market. Reducing interdependent risks increases the incentive to invest.

THE MURPHY–SHLEIFER–VISHNY MODEL

Kevin Murphy, Andrei Shleifer, and Robert Vishny (1989:537–564) analyze an economy in which world trade is costly – perhaps today, Bolivia, where a majority of the population live on a high plateau between two north–south Andes mountain chains; landlocked east-central African states Rwanda, Burundi, Uganda, or Malawi; or isolated islands Papua New Guinea; or, in the 19th century, the United States, Australia, or Japan. Domestic agriculture or exports may not be sufficient for industrialization, so these economies need large domestic markets, à la Rosenstein-Rodan. For increasing returns from sliding down the initial part of a U-shaped long-run average cost curve (representing successive plants with more specialized labor and equipment), sales must be high enough to cover fixed setup costs.

To illustrate, "in the first half of the nineteenth century, the United States greatly surpassed England in the range of consumer products it manufactured using mass production techniques" (ibid., p. 538). In contrast to high-quality English artisan products for a quality-conscious upper class, American producers offered standardized mass-produced utilitarian items, largely bought by relatively well-off farmers and other middle classes. Colombia's tobacco export boom failed to lead to widespread economic development, as incomes went to a few plantation owners who spent on luxury imports. Later, from 1880 to 1915, however, the boom in coffee exports, grown on small family enterprises, benefited large numbers demanding domestic manufactures (ibid., p. 539). For industrialization, incomes from the leading sector must be broadly distributed, providing demand for manufactures.

CRITIQUE OF BALANCED GROWTH

Advocates of balanced growth emphasize a varied package of industrial investment at the expense of investment in agriculture, especially exports. But Chapter 17 shows that a country cannot grow rapidly if it fails to specialize where production is most efficient. Recent experience indicates that LDCs cannot neglect agricultural investment if they are to feed their population, supply industrial inputs, and earn foreign currency. Chapter 14 points out that the recent demand for primary product exports increased so that their value grew as fast as GNP.

Furthermore, infrastructure is not so indivisible as Rosenstein-Rodan implies. Roads, rivers, canals, or air traffic can substitute for railroads. Roads may be dirt, graveled, blacktopped, or paved and of various widths. Power plants can differ greatly in size, and telegram and telephone systems can be small, large, or intermediate. Large infrastructure facilities, although perhaps economical at high levels of economic development, are not essential for LDC growth (Hagen 1980:89–90).

Some critics argue that the resources required for carrying out a policy of balanced growth are so vast that a country that could invest the required capital would not, in fact, be underdeveloped. In fact, farm workers with zero marginal labor productivity are not available (Chapter 9). In any case, where will a LDC obtain the capital, skilled labor, and materials needed for such wide industrial expansion? We cannot forget that although new industries may be complementary on the demand side, they are competitors for limited resources on the supply side.

Advocates of balanced growth assume LDCs start from scratch. In reality every developing country starts from a position that reflects previous investment decisions. Thus, at any time, there are highly desirable investment programs not balanced in themselves but well integrated with existing capital imbalances (Singer 1958; Fleming 1955:241–256).

But perhaps the major discreditor of the balanced growth strategy was the widespread evidence in the 1960s and 1970s that LDCs were growing rapidly – without any attempt at the massive investments in the wide range of industries that advocates of the strategy considered essential.

HIRSCHMAN'S STRATEGY OF UNBALANCE

Albert O. Hirschman (1958) develops the idea of unbalanced investment to complement existing imbalances. He contends that deliberately unbalancing the economy, in line with a predesigned strategy, is the best path for economic growth. He argues that the big push thesis may make interesting reading for economists, but it is gloomy news for the LDCs: They do not have the skills needed to launch such a massive effort. The major shortage in LDCs is not the supply of savings, but the decision to invest by entrepreneurs, the risk takers and decision makers. The ability to invest is dependent on the amount and nature of existing investments. Hirschman believes poor countries need a development strategy that spurs investment decisions.

He suggests that since resources and abilities are limited, a big push is sensible only in strategically selected industries within the economy. Growth then spreads from one sector to another (similar to Rostow's concept of leading and following sectors).

However, investment should not be left solely to individual entrepreneurs in the market, as the profitability of different investment projects may depend on the order in which they are undertaken. For example, assume investment in a truck factory yields a return of 10 percent per year; in a steel factory, 8 percent, with the interest rate 9 percent. If left to the market, a private investor will invest in the truck factory. Later on, as a result of this initial investment, returns on a steel investment increase to 10 percent, so then the investor invests in steel.

Assume, however, that establishing a steel factory would increase the returns in the truck factory in the next period from 10 to 16 percent. Society would be better off investing in the steel factory first, and the truck enterprise second, rather than making independent decisions based on the market. Planners need to consider the interdependence of one investment project with another so that they maximize overall *social* profitability. They need to make the investment that spurs the greatest amount of new investment decisions. Investments should occur in industries that have the greatest linkages, including **backward linkages** to enterprises that sell inputs to the industry, and **forward linkages** to units that buy output from the industry. The steel industry, with backward linkages to coal and iron production, and forward linkages to the construction and truck industries, has good investment potential, according to Hirschman.

Even a government that limits its major role to providing infrastructure can time its investment projects to spur private investments. Government investment in transport and power will increase productivity and thus encourage investment in other activities.

Initially, planners trying to maximize linkages will not want to hamper imports too much, because doing so will deprive the country of forward linkages to domestic industries using imports. In fact, officials may encourage imports until they reach a threshold in order to create these forward linkages. Once these linkages have been developed, protective tariffs will provide a strong inducement for domestic entrepreneurs to replace imports with domestically produced goods.

CRITIQUE OF UNBALANCED GROWTH

Hirschman fails to stress the importance of agricultural investments. According to him, agriculture does not stimulate linkage formation so directly as other industries. However, empirical studies indicate agriculture has substantial linkages to other sectors; moreover, agricultural growth makes vital contributions to the nonagricultural sector through increased food supplies, added foreign exchange, labor supply, capital transfer, and larger markets (Johnston and Mellor 1961:571–581).

What constitutes the proper investment balance among sectors requires careful analysis. In some instances, imbalances may be essential for compensating for existing imbalances. By contrast, Hirschman's unbalanced growth should have some kind of balance as an ultimate aim. Generally, the concepts of *balance* and *imbalance* are of limited value. To be helpful, their meanings need to be defined carefully in specific decision-making contexts.

Coordination Failure: The O-Ring Theory of Economic Development

Balanced and unbalanced growth advocates focus on preventing or overcoming coordination failure. Michael Kremer (1993) uses the 1986 space shuttle *Challenger* as a metaphor for coordinating production in "The O-Ring Theory of Economic Development." The *Challenger* had thousands of components, but it exploded because the temperature at which it was launched was so low that one component, the O-rings, malfunctioned. In a similar fashion, Kremer proposes a production function in which "production consists of many tasks, [either simultaneous or sequential], all of which must be successfully completed for the product to have full value" (ibid., p. 551). To illustrate, a violinist who plays off key or misses the beat can ruin a whole symphony orchestra. This function describes production processes subject to mistakes in any of several tasks. You cannot substitute quantity for quality; indeed, "quality is job one." This production function does not allow the substitution of quantity (two mediocre violinists, copyeditors, chefs, or goalkeepers) for quality (one good one). Highly skilled workers who make few mistakes will be matched together, with wages and output rising steeply with skill.[2] Rich countries specialize in complicated products, such as aircraft, whereas poor countries produce simpler goods, such as textiles and coffee. Kremer thinks the O-ring theory can explain why rich countries specialize in more complicated products, have larger firms, and have astonishingly higher worker productivity and average incomes than poor countries.

Taiwan and South Korea, otherwise ready for takeoff in the mid-1960s, relied on government action to override coordination failure. Both countries have a reasonably skilled labor force but a low endowment of physical capital, especially for taking advantage of scale economies. Additionally, some labor skills are not available locally and some technologies are not readily transferable internationally (Rodrik 2000:195–201).

Korea's government provided the initiative, subsidized capital, and guaranteed markets to *chaebols*, such as Hyundai and Lucky Goldstar, allowing them to internalize spillovers from one affiliate to another (ibid., p. 197). For example, "Hyundai used its cement plant . . . to train its managers with background in construction, before assigning them to other manufacturing affiliates" (Amsden 1989).

Taiwan's government took the initial steps in establishing enterprises such as plastics, textiles, fibers, steel, and electronics. In some instances, such as plastics, the state firm was handed over to private entrepreneurs on completion (Rodrik 2000:198–199).

For Mankiw, Romer, and Weil (1992:407–437), human capital, and for Romer, **endogenous** (originating internally) technology, when added to physical capital and labor in neoclassical growth theory, are important factors contributing to economic growth. Microeconomic studies by Gregory Clark (1987:141–173) indicate that an

[2] This is similar to the marriage model of Becker (1981:72), in which marriage partners of similar quality are matched together.

early-20th-century New England (U.S.) cotton textile mill operative, with the same equipment, "performed as much work as 1.5 British, 2.3 German, and nearly 6 Greek, Japanese, Indian, or Chinese workers."

The Lewis–Fei–Ranis Model

The purpose of the Lewis–Fei–Ranis model is to explain how economic growth gets started in a less-developed country with a traditional agricultural sector and an industrial capitalist sector. In the Lewis–Fei–Ranis model, economic growth occurs because of the increase in the size of the industrial sector, which accumulates capital, relative to the subsistence agricultural sectors, which amasses no capital at all. The source of capital in the industrial sector is profits from the low wages paid an unlimited supply of surplus labor from traditional agriculture.

THE LEWIS MODEL

Urban industrialists increase their labor supply by attracting workers from agriculture who migrate to urban areas when wages there exceed rural agricultural wages. Sir W. Arthur Lewis elaborates on this explanation in his explanation of labor transfer from agriculture to industry in a newly industrializing country. In contrast to those economists writing since the early 1970s, who have been concerned about overurbanization, Lewis, writing in 1954, is concerned about possible labor shortages in the expanding industrial sector.

Lewis believes in zero (or negligible) marginal productivity of labor in subsistence agriculture, a sector virtually without capital and technological progress. Yet he contends that the wage (w) in agriculture is positive at subsistence (s): w_s (see Figure 5-1). For this to be true, it is essential only that the *average* product of labor be at a subsistence level, as agricultural workers divide the produce equally among themselves until food availability is above subsistence. Lewis feels equilibrium wages in agriculture stay at w_s through the classical mechanism of the iron law of wages, in which higher wages are brought down by population growth, and lower wages raised as output spread over a smaller population is reduced by an increased mortality rate.

For the more capital-intensive urban industrial sector to attract labor from the rural area, it is essential to pay w_s plus a 30-percent inducement, or w_k (the capitalist wage). This higher wage compensates for the higher cost of living as well as the psychological cost of moving to a more regimented environment. At w_k the urban employer can attract an unlimited supply of unskilled rural labor. The employer will hire this labor up to the point Q_{L_1}, where the value of its extra product (or the left marginal revenue product curve MRP_{L_1}) equals the wage w_k. The total wages of the workers are equal to OQ_{L_1}, the quantity of labor, multiplied by w_k, the wage (that is, rectangle OQ_{L_1}BA). The capitalist earns the surplus (ABC in Figure 5-1), the amount between the wage and that part of the marginal product curve above the wage.

Lewis assumes that the capitalist saves the entire surplus (profits, interest, and rent) and the worker saves nothing. Furthermore, he suggests that all the surplus is

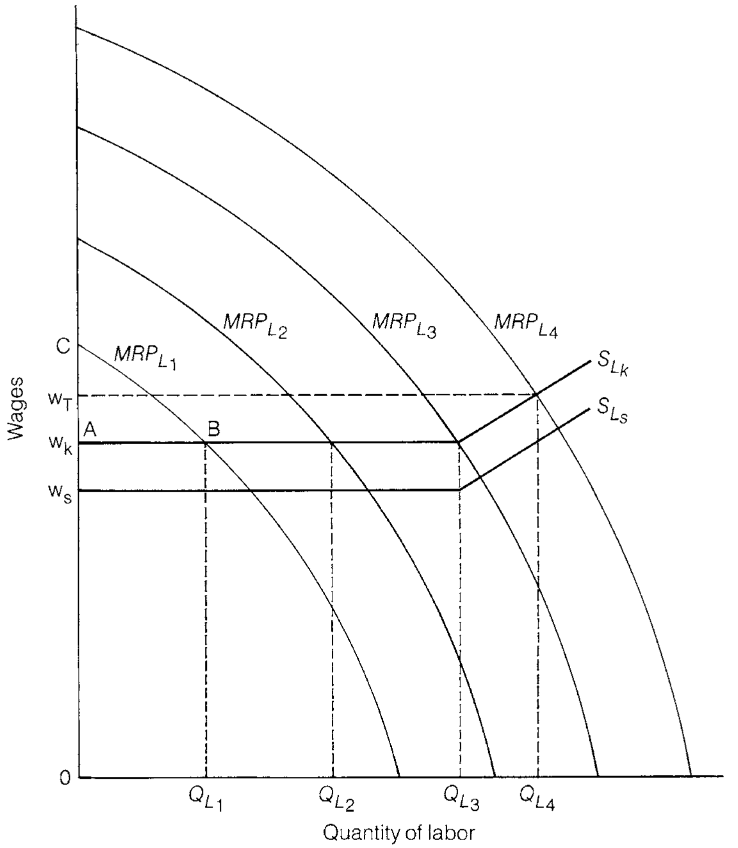


FIGURE 5-1. Industrial Expansion in the Lewis Model. An unlimited supply of labor available to the industrial sector facilitates capital accumulation and economic growth. *Source:* Based on Lewis 1954:146.

reinvested, increasing the amount of capital per worker and thus the marginal product of labor to MRP_{L_2}, so that more labor Q_{L_2} can be hired at wage rate w_k. This process enlarges the surplus, adds to capital formation, raises labor's marginal productivity, increases the labor hired, enlarges the surplus, and so on, through the cycle until all surplus labor is absorbed into the industrial sector. Beyond this point Q_{L_3}, the labor supply curve (S_{Lk}) is upward-sloping and additional laborers can be attracted only with a higher wage. As productivity increases beyond MRP_{L_3} to MRP_{L_4}, the MRP_L (or demand for labor) curve intersects the labor supply curve at a wage w_T and at a quantity of labor Q_{L_4} in excess of surplus rural labor (Lewis 1954:139–191).

In the Lewis model, capital is created by using surplus labor (with little social cost). Capital goods are created without giving up the production of consumer goods. However, to finance surplus labor, additional credit may sometimes be needed.

The significance of Lewis's model is that growth takes place as a result of structural change. An economy consisting primarily of a subsistence agricultural sector (which does not save) is transformed into one predominantly in the modern capitalist sector

(which does save). As the relative size of the capitalist sector grows, the ratio of profits and other surplus to national income grows.

CRITIQUE

Critics question the theoretical underpinning of the Lewis model, the assumption of an unlimited labor supply.[3] They believe the capitalist wage rate may rise before all surplus rural labor is absorbed. As workers with zero marginal productivity migrate from the subsistence agricultural sector, those workers remaining in this sector will then divide *constant* output among *fewer persons* resulting in a *higher wage*. Industrial wages, then, must increase to motivate rural workers to migrate. Lewis's critics argue that the larger industrial labor force contributes to greater food demand, but the capacity to produce food is unchanged. Thus, food prices rise. Accordingly, the industrial sector must increase wages to pay for the increased price of food. Lewis overestimates the extent that the availability of cheap rural migrant labor can stimulate industrial growth.

THE FEI–RANIS MODIFICATION

How can LDCs maintain subsistence output per farm worker in the midst of population expansion? John Fei and Gustav Ranis, in their modification of the Lewis model, contend that the agricultural sector must grow, through technological progress, for output to grow as fast as population; technical change increases output per hectare to compensate for the increase in labor per land, which is a fixed resource. Gustav Ranis and John C. H. Fei (1961:533–565; Fei and Ranis 1964) label w_k from 0 to Q_{L_3} an **institutional wage** supported by nonmarket factors such as the government minimum wage or labor union pressure. This institutional wage can remain infinitely elastic even when the marginal revenue productivity of labor is greater than zero; this wage remains at the same level as long as marginal productivity is less than the wage. However, the threshold for both agricultural and industrial sectors occurs when the marginal revenue productivity in agriculture equals the wage. At this point, the **turning point** or **commercialization point**, industry abandons the institutional wage, and together with agriculture, must pay the market rate. As with the Lewis model, the advent of fully commercialized agriculture and industry ends industrial growth (or what Fei–Ranis labels the takeoff into self-sustained growth).

One problem is to avoid increasing the average product of labor in agriculture and the industrial institutional wage that would halt industrial expansion. Fei and Ranis solve this with a sleight of hand; the LDC maintains a constant institutional wage until Q_{L_3} but at the expense of realism: each migrating farm worker takes his or her own subsistence bundle to the industrial sector.

How do Fei and Ranis prevent rises in food prices (and the agricultural terms of trade) from increasing the industrial wage? They propose a balanced growth

[3] In the early 21st century, China, with substantial rural populations, may be the closest to an unlimited labor supply.

between agriculture and industry. However, agricultural growth increases farm income, undermining the restraints on the institutional wage.

APPLICATION OF THE LEWIS–FEI–RANIS MODEL TO JAPAN

Fei and Ranis believe their model applies to Japan from 1888 to 1930. Indeed, unlike Lewis's assumption, the marginal productivity of labor in Japanese agriculture during this period was always positive. And Japan's industry paid a low premium for labor after 1873, when land reform displaced a large number of landless workers, who could no longer lease land. Because much of industry's wage laborers – women, second and third sons with no inheritance rights, or off-farm part-time workers – merely supplemented household income, employers paid them less than subsistence wages.

However, subsistence levels rose over time during the late 19th and early 20th centuries as the minimum maintenance expected by society increased with growth. The relatively stable agricultural (and thus industrial) real wages can be attributed partly to technical progress and increased productivity in agriculture (and cheap food from the colonies of Taiwan and Korea after 1911), which enabled the industrial sector to buy food without declining terms of trade. These low real industrial wages increased industrial profits, business savings, and labor-intensive manufactured export competitiveness, consistent with the Lewis–Fei–Ranis model. Indeed, the large wage differential between France and Italy, on the one hand, and Japan, on the other, was a major contributor to Japan's comparative advantage in textiles, a labor-intensive commodity.

In Japan, over a normal range, where product and labor demand increased gradually, **labor supply elasticities** (percentage change in quantity supplied/percentage change in wage) were high (although not infinite, with a perfectly horizontal supply, as in Lewis–Fei–Ranis), benefiting from vast reserves in the agricultural and informal industrial sectors. But the 1915–19 increase in demand for Japanese industrial products and labor resulting from World War I was too substantial to be satisfied by labor from the elastic portion of the supply curve. Wage equilibrium could only be attained at the inelastic portion of the labor supply curve, thus increasing industrial wages and subsequently, through greater food demand by new workers, increasing agricultural product (especially rice) and labor prices. In the 1920s and early 1930s, industrial wages – rigid in the downward direction because of emerging unions – remained high, whereas agricultural (and informal industrial sector) wages declined from their war peak. Nevertheless, during the 1920s and early 1930s, Japan's rapid increase in labor productivity relative to labor remuneration increased its export competitiveness, especially in textiles. Following the war and recovery years from 1935 to 1955, the labor surplus ended and industrial sector supply turned inelastic permanently, as innovation-led demand for industrial products and labor increased rapidly, whereas labor supply growth from agriculture and population growth was drying up (Shinohara 1962, 1970; Minami 1973; Ohkawa and Rosovsky 1973; Hayami 1975; Tsurumi 1990; Nafziger 1995:103–105).

In Japan, unlike Lewis–Fei–Ranis, the capitalist wage rate was raised during World War I before all surplus rural labor was absorbed. As workers with low (not zero, as in Lewis's model) marginal productivity migrated from the subsistence agricultural sector, that sector than divided its growing output among fewer persons, resulting in a gradually increasing wage. Industrial wages then had to increase to motivate rural workers to migrate. The larger industrial labor force contributed to a growing food demand that rose more rapidly than the capacity to produce food, resulting in food price increases. Accordingly, the industrial sector had to raise wages to pay for the increased price of food. In the Japanese case, the Fei–Ranis model overestimated the time that cheap labor could stimulate industrial growth.

Indeed, empirical studies by neoclassical critics show that (1) both farm and industrial wages fluctuate in response to changes in supply and demand; and (2) the supply curve is upward sloping, showing a positive relationship between the wage and quantity of labor. The supply curve is not infinitely elastic, as for portions of the supply curves in Figure 5-1, but inelastic, meaning that the percentage change in quantity is less than the percentage change in wage (Hansen 1966:367–407; Hansen 1969:298–313; Richards 1993:239–261). Evidence by these critics suggest that the period of unlimited supply of labor is more restricted than either Lewis or Fei–Ranis indicate.

Baran's Neo-Marxist Thesis

Africa, Asia, and Latin America were not of major interest to Marx. He regarded production in these regions as feudal and backward compared to the more progressive modes of capitalism. Thus, he saw the introduction of European capitalism in these regions as beneficial. But in the 20th century, Marxian analysis came to encompass an international class struggle, including the conflict between rich and poor countries. Vladimir Il'ich Lenin, who not only furnished intellectual and organizational leadership for the revolutionary takeover of power by the Communist Party in Russia in October 1917 but was also chairman of the party from then until his death in 1924, provided much of this new Marxian revision. He argued that it was essential to recognize the difference between the monopoly capitalism of his period and the competitive capitalism of Marx's day. According to Lenin, a logical outgrowth of the monopoly stage of industrial and financial capitalism is the imperialist domination of poor countries by rich countries.

THESIS

The late U.S. Marxist Paul A. Baran incorporated Lenin's concepts of imperialism and international class conflict into his theory of economic growth and stagnation. For Baran capitalist revolution, homegrown variety, in LDCs was unlikely because of Western economic and political domination, especially in the colonial period. Capitalism arose not through the growth of small competitive firms at home but through the transfer from abroad of advanced monopolistic business. Baran felt that as capitalism took hold, the bourgeoisie (business and middle classes) in LDCs,

lacking the strength to spearhead thorough institutional change for major capital accumulation, would have to seek allies among other classes.

Thus, in certain instances, the bourgeoisie would ally itself with the more moderate leaders of the workers and peasants to form a progressive coalition with a New Deal orientation (such as the Congress Party governments under Prime Minister Jawaharlal Nehru, 1947–64, in India). At the outset, such a popular movement would be essentially democratic, antifeudal, and anti-imperialist and in support of domestic capitalism. However, the indigenous capitalist middle classes would ultimately be either unwilling or unable to provide the leadership for a sustained economic development that also would greatly reduce poverty and liberate the masses. In time, the bourgeoisie, frightened by the threat of labor radicalism and populist upheaval and the possible expropriation of their property, would be forced into an alliance with the landed interests and the foreign bourgeoisie in their midst, whose governments could provide economic and military assistance to stave off impending disaster.

The differences within this counterrevolutionary coalition would not interfere with the overriding common interest in preventing socialism. Even so the coalition would be unable to raise the rate of capital accumulation significantly. A progressive income tax system to eliminate nonessential consumption; channeling savings from the landed aristocracy into productive investment; and undertaking substantial public investment in sectors in which private capital does not venture, in which monopolistic controls block expansion, or in which infrastructure is required, would be beyond the coalition's ability or desire. Thus, this conservative alliance thrusts the popular forces even further along the road of radicalism and revolt, leading to further polarization. Finally, Baran theorizes that the only way out of the impasse may be worker and peasant revolution, expropriating land and capital, and establishing a new regime based on the "ethos of collective effort," and "the creed of the predominance of the interests of society over the interests of a selected few" (Baran 1957; more succinctly presented in Baran 1952:66–84).

CRITIQUE

Although Baran's approach explains the difficulties that some reformed capitalist LDCs face in spurring economic development, the theory fails to examine a number of economic and political conflicts of interest. Although there are certainly many local agents, managers, merchants, industrialists, bureaucrats, and politicians who benefit considerably from foreign-controlled capital and technology, there are also some local capitalists whose interests compete with foreign business. These capitalists and their allies frequently lead movements for independence. (For example, Côte d'Ivoire cocoa farmers who opposed the formation of French cocoa plantations were major supporters of the nationalist Democratic Party in the 1950s.) After independence, these nationalist elements may become even stronger as colonial economic ties are gradually weakened. Economic policy under a coalition of domestic capitalists, politicians, and bureaucrats may erode the power of foreign capital. The allies and competitors of foreign business people are often locked in economic and political conflict.

Baran also ignores the probability that power is more frequently transferred from one elite to another when revolution occurs, rather than from the advantaged classes to the politically dispossessed masses: Very few of the Soviet and Chinese revolutionary leaders were workers or poor peasants.

For Baran (1952:84), the society closest to "a new social ethos [that] will become the spirit and guide of a new age" is the Soviet Union after 1917. He argues that despite the political violence used by Stalin in the 1930s, and the loss of several million lives during this period, the collectivization of agriculture in the Soviet Union was the only possible approach to economic growth, given an irrational and illiterate peasantry. However, he ignores the substantial growth in both agriculture and industry from 1921 to 1928 under the Soviet New Economic Policy of market socialism. This policy consisted of widespread reliance on market prices, limited private ownership (especially in agriculture), and state ownership of most of the largest industrial enterprises. After Stalin began collectivization, agricultural production declined, the peasant's standard of living dropped significantly, and even the savings agriculture contributed to the industrial sector probably did not increase. There were widespread violence, famine, forced labor, and purges during collectivization. Although the performance of Soviet agriculture since then has improved, the relatively slow growth in agricultural productivity has frustrated Soviet leadership in its attempt to increase average consumption levels to those expected in a high-income economy.

Baran does not ask whether a more gradual, less-centralized approach to agricultural production would have resulted in more rapid development. But perhaps such a question cannot be resolved. Some historians argue that raising living levels, increasing life expectancy, and improving literacy during economic growth have inevitable human costs. Squalor, poverty, an unhealthy environment, a high infant mortality rate, and a high premature death rate among the working poor may mark the economic transition, as occurred during Europe's Industrial Revolution, or by the disruption, famine, and death among peasants in the Soviet Union in the 1930s. But, in any case, the human costs cannot be avoided.

Several Marxian economists have argued that the Russian Revolution of 1917 did not erase divergent class interests. One French economist argues that the USSR abandoned the socialist road, creating a new ruling class – made up of the Communist Party, the *Praesidium*, and the bureaucracy – whose economic interests are antagonistic to those of Soviet workers (Bettelheim 1978).

Dependency Theory

Celso Furtado (1970, 1968), a Brazilian economist with the U.N. Economic Committee for Latin America, was an early contributor to the Spanish and Portuguese literature in **dependency theory** in the 1950s and 1960s. According to him, since the 18th century, global changes in demand resulted in a new international division of labor in which the peripheral countries of Asia, Africa, and Latin America specialized in primary products in an enclave controlled by foreigners while importing consumer

goods that were the fruits of technical progress in the central countries of the West. The increased productivity and new consumption patterns in peripheral countries benefited a small ruling class and its allies (less than a tenth of the population), who cooperated with the DCs to achieve modernization (economic development among a modernizing minority). The result is "peripheral capitalism, a capitalism unable to generate innovations and dependent for transformation upon decisions from the outside" (Furtado 1973:120).

A major dependency theorist, Andre Gunder Frank, was a U.S. expatriate recently affiliated with England's University of East Anglia. Frank, writing in the mid-1960s, criticized the view held by many development scholars that contemporary underdeveloped countries resemble the earlier stages of now-developed countries. Many of these scholars viewed modernization in LDCs as simply the adoption of economic and political systems developed in Western Europe and North America.

For Frank, the presently developed countries were never *under*developed, although they may have been *un*developed. His basic thesis is that underdevelopment does *not* mean traditional (that is, nonmodern) economic, political, and social institutions but LDC subjection to the colonial rule and imperial domination of foreign powers. In essence, Frank sees underdevelopment as the effect of the penetration of modern capitalism into the archaic economic structures of the third world.[4] He sees the deindustrialization of India under British colonialism, the disruption of African society by the slave trade and subsequent colonialism, and the total destruction of Incan and Aztec civilizations by the Spanish conquistadors as examples of the *creation* of underdevelopment (Frank 1969).

More plainly stated, the economic development of the rich countries contributes to the underdevelopment of the poor. Development in an LDC is not self-generating nor autonomous but ancillary. The LDCs are economic satellites of the highly developed regions of Northern America and Western Europe in the international capitalist system. The Afro-Asian and Latin American countries least integrated into this system tend to be the most highly developed. For Frank, Japanese economic development after the 1860s is the classic case illustrating his theory. Japan's industrial growth remains unmatched: Japan, unlike most of the rest of Asia, was never a capitalist satellite.

Brazil best illustrates the connection between the satellite relationship and underdevelopment. Since the 19th century, the growth of major cities, Sao Paulo and Rio de Janeiro, has been satellite development – largely dependent on outside capitalist powers, especially Britain and the United States. As a result, regions in interior

[4] Wilmsen's (1989) political economy of Botswana's Kalahari provides excellent anthropological support for dependency analysis. The author, who worked in the Kalahari for more than 15 years, criticizes ethnologists for analyzing the San-speaking peoples (or Bushmen) on the rural fringe of southern African economies without considering their historical context and contemporary condition. In previous millennia, the San were enmeshed in the pastoralist economies of the region through production and kinship networks. The poverty, remoteness, and foraging of the San are not unchanging attributes bequeathed by ancient ancestors, Wilmsen contends, but results of subjugation under capitalist penetration and state expansion during the past four to five centuries.

Brazil have become satellites of these two cities and, through them, of these Western capitalist countries.

Frank suggests that satellite countries experience their *greatest* economic development when they are *least* dependent on the world capitalist system. Thus, Argentina, Brazil, Mexico, and Chile grew most rapidly during World War I, the Great Depression, and World War II, when trade and financial ties with major capitalist countries were weakest. Significantly, the most underdeveloped regions today are those that have had the closest ties to Western capitalism in the past. They were the greatest exporters of primary products to, and the biggest sources of capital for, developed countries and were abandoned by them when for one reason or another business fell off. Frank points to India's Bengal; the one-time sugar-exporting West Indies and Northeastern Brazil; the defunct mining districts of Minas Gerais in Brazil, highland Peru, and Bolivia; and the former silver regions of Mexico as examples. He contends that even the *latifundium*, the large plantation or hacienda that has contributed so much to underdevelopment in Latin America, originated as a commercial, capitalist enterprise, not a feudal institution, which contradicts the generally held thesis that a region is underdeveloped because it is isolated and precapitalist.

It is an error, Frank feels, to argue that the development of the underdeveloped countries will be stimulated by indiscriminately transferring capital, institutions, and values from developed countries. He suggests that, in fact, the following economic activities have contributed to underdevelopment, not development:

1. Replacing indigenous enterprises with technologically more advanced, global, subsidiary companies.
2. Forming an unskilled labor force to work in factories and mines and on plantations.
3. Recruiting highly educated youths for junior posts in the colonial administrative service.
4. Workers migrating from villages to foreign-dominated urban complexes.
5. Opening the economy to trade with, and investment from, developed countries.

According to Frank, a third-world country can develop only by withdrawing from the world capitalist system. Perforce, such a withdrawal means a large reduction in trade, aid, investment, and technology from the developed capitalist countries.[5]

CRITIQUE

Many economic historians would agree with Frank that colonies paid dearly for economic dependency under foreign rule. They grant that development was not self-directed. Production was directed toward external rather than domestic needs; economic policies inhibited local industrial activity and led to uneven ethnic and regional

[5] Richard DuBoff (2003:11–15) argues that the military superiority of major capitalist countries (primarily the United States) is the key to support for the world's open trade and investment and LDC dependence.

economic progress; an elite oriented to foreign interests arose. However, these costs were offset, at least in part, by the development of schools, roads, railroads, and administrative service under the colonial powers.

Moreover, it is unfair to compare the experience of these countries under colonialism to what *might* have happened without foreign domination. The internal economic and political weaknesses of Afro-Asian and Latin American countries during the last part of the 19th and early part of the 20th centuries probably made it inevitable that most of them would be economically dependent on some foreign power. The acute underdevelopment of Afghanistan, Thailand, and Ethiopia, which were not colonized, although the West influenced them, suggests that colonialism by itself may not have had so negative an impact as Frank indicates. Furthermore, cutting economic ties with developed capitalist countries, as Frank recommends, is more likely to inhibit than expedite LDC development. To be sure, the People's Republic of China (through 1976) and the Soviet Union (from the 1930s through the 1950s) were not much hurt by a policy of economic self-sufficiency because they had large resource bases. However, Frank's recommendation is often costly for small countries. Ghana's President Kwame Nkrumah lost a 1957 wager to President Felix Houphouet-Boigney of neighboring Côte d'Ivoire, similar in resource endowment to Ghana, that history would judge Ghana, which cut economic ties with capitalist countries, more successful economically than Côte d'Ivoire, dependent on the French for the majority of industrial investment (through the early 1970s) and for international trade. Côte d'Ivoire outperformed Ghana in annual growth: from 1950 to 1960, 1.5 percent to −0.3 percent; from 1960 to 1970, 4.2 percent to −0.3 percent (Nkrumah was overthrown by a military coup in 1966); and from 1970 to 1980, 1.4 percent to −3.2 percent. However, after Nkrumah died, 1972, and before Houphouet-Boigney died, 1993, the same year he left office, Ghana's annual growth exceeded Côte d'Ivoire's 1.1 percent to −4.7 percent (1980–92) (Nafziger 1988:54, 72–74; World Bank 1994i:162–215), suggesting problems with the Ivorian long-term growth strategy. Moreover, Cuba also stagnated during a period of drastically reduced economic ties to foreign capital. By contrast, Taiwan and South Korea both experienced annual real growth of at least 7 percent (World Bank 1994i:162–215; Nafziger 1997:16) and decreased income inequality from 1960 to 1980 while being highly dependent on trade, assistance, and investment from the United States and other capitalist countries.[6]

Some changes to cut dependence have not had the anticipated effect. Dependence took new forms in the last quarter of the 20th century. Beginning in the mid-1970s, Nigeria took several steps that, on the face of it, should have reduced its dependence on the West. The Lagos government cut substantially the share of its trade with the colonial power, Britain. Lagos acquired majority equity holdings in local

[6] Warren (1980), a Marxist economist, argues that the LDC state can control foreign multinational corporations, using contact with advanced capitalist economies to strengthen the development of an indigenous capitalist class that can play a leading role in industrialization.

petroleum extracting, refining, and distribution and promulgated an indigenization decree shifting the majority of ownership in manufacturing from foreign to indigenous hands. But these measures did not greatly reduce dependence on the West. Nigeria's trade was still virtually all with capitalist DCs (with the United States replacing Britain as the chief trading partner). In contrast to more diversified exports in the 1960s, petroleum comprised more than 90 percent of export value since 1974. Moreover, only 15–20 percent of the petroleum industry's total expenditure on goods and services was spent on locally produced items, which do not include most basic requirements, such as drilling rigs, platforms, heavy structures, underwater engineering systems, and other advanced technologies. Furthermore, multinational corporate (MNC) ownership was replaced by MNC–state joint enterprises, which enriched private middlemen and women and enlarged the patronage base for state officials but did little to develop Nigerian administrative and technological skills for subsequent industrialization. Kenya, Tanzania, Zaire, Malawi, and Bangladesh made even less progress than Nigeria in using indigenization requirements to reduce external dependence (Nafziger 1988:53–54).

There are, however, several instances in which countries might have developed more rapidly with less dependence on foreign economic initiative. Pakistan, Bangladesh, Honduras, Guatemala, Zaire, and the Philippines were probably hurt by excessive economic dependence on the United States and other Western countries. But the solution to these problems is not withdrawal from the world capitalist system but, rather, a more selective policy in dealings with capitalist countries. Trade, economic aid, capital movements, and technological borrowing from developed countries should be such that investment is directed into priority industries. Discouraging foreign monopoly power, encouraging domestic enterprise, preventing heavy debt burdens, avoiding substantial technological dependence on outsiders, and protecting infant domestic industries should all be part of this selective policy. (Chapters 15–17 discuss further foreign trade and investment strategies.)

What characteristics of dependent economies are not found in independent ones? Frank defines dependence in a circular manner. The LDCs are underdeveloped because they are dependent. But the features Frank concentrates on in defining dependence are those characteristics of underdevelopment. Thus, the theory does not offer an independent and verifiable explanation of the processes causing underdevelopment.

Are there degrees of economic dependence? Dependency theory fails to distinguish between regional powers in the third world, such as Brazil and OPEC countries, Venezuela, Libya, Saudi Arabia, and Nigeria, and more dependent countries, such as Senegal, Niger, Uganda, Nepal, and Lesotho.

Finally, most developed countries are also dependent on foreign economic ties. In fact, Canada and Belgium may be more dependent on foreign investment than India or Pakistan, but Frank does not consider them dependent countries. Rather than divide the world into dependent and independent countries, it seems more sensible to think in terms of a continuum of dependence from the weakest LDC to the most powerful capitalist country.

The Neoclassical Counterrevoluation

In the 1980s, the governments of economic conservatives, American President Ronald Reagan, British Prime Minister Margaret Thatcher, Canadian Prime Minister Brian Mulroney, German Chancellor Helmut Kohl, and a series of Japanese Liberal Democratic Party prime ministers coincided with a **neoclassical counterrevolution** in economic policy and analysis. "Liberal" here, and among Europeans, refers to **economic liberalism** (the ideology of Adam Smith, Milton Friedman, and Ludwig von Hayek), which stresses freedom from the state's economic restraint (see the discussion on factors influencing capitalism in Chapter 3), and not left-of-center politics and economics, as used in North America. (Another usage refers to the "liberal" arts and sciences worthy of a free person.) Support of neoclassicism continued regardless of ruling party in Western nations, as indicated by the presidencies of George H. W. Bush, Bill Clinton, and George W. Bush in the United States; the premierships of John Major and Tony Blair in Britain; and heads of state in continental Europe, even when Social Democratic parties formed the government.

The governments of the United States, Canada, Western Europe, Japan, Australia, and New Zealand, high-income members of the **Organization for Economic and Cooperation and Development (OECD)**, largely supportive of the market, privatization, supply-side economics, and other neoclassical positions, were influential as majority holders in two international financial institutions created at Bretton Woods, New Hampshire, in July 1944 as part of a new post–World War II international economic order, the **World Bank** and **International Monetary Fund (IMF)**. The World Bank (or International Bank for Reconstruction and Development) initially envisioned as a source for loans to areas devastated during World War II, is now the major source of development loans to LDCs. The IMF, an agency charged with promoting exchange stability to provide short-term credit for international balance of payments deficits, is a lender of last resort, where borrowers agree to adopt acceptable adjustment policies. Neoclassicists dominated policy positions in the World Bank and IMF, and even had substantial influence in the U.N. Development Program (UNDP) and the regional development banks (especially African, Asian, and Middle Eastern), although failing to penetrate the U.N. Conference on Trade and Development (UNCTAD) and International Labor Organization (ILO), which, like the 1960s and 1970s, are still dominated by third-world ideologies demanding a more just world economic order.

The neoclassicists contend that slow or negative growth results from poor resource allocation from nonmarket prices and excessive LDC state intervention. They argue that promoting competitive free markets, privatizing public enterprises, supporting exports and free international trade, liberalizing trade and exchange rates, allowing exchange rates to attain a market-clearing rate, removing barriers to foreign investment, rewarding domestic savings, reducing government spending and monetary expansion, and removing regulations and price distortions in financial, resource, and commodity markets will spur increased efficiency and economic growth. The World Bank and IMF point to South Korea, Taiwan, Singapore, Hong Kong, Malaysia,

Thailand, and Indonesia as examples of the free market approach, although we have seen in Chapter 3 that governments have played major roles in their economic development.

Neoclassicism's policies are reflected in the **Washington consensus**, a term coined by Washington's Institute of International Economics' economist John Williamson (1993:1329–1936; 1994b:26–28). This consensus includes the World Bank, the IMF, and the U.S. government, based in Washington, D.C., and other major Bank–IMF shareholders, the high-income OECD governments, although perhaps not the OECD bureaucracy itself in Paris, France.

The following are the components of the neoclassical Washington consensus:

(1) *Price decontrol*. Neoclassicists favor immediate lifting of controls on commodity, factor, and currency prices.
(2) *Fiscal discipline*. Budget deficits of governments or central banks should be small enough to be financed without using inflationary financing.
(3) *Public expenditure priorities*. LDCs should reduce government spending, and redirect expenditures from politically sensitive areas such as administration, defense, indiscriminate subsidies, and "white elephants" to infrastructure, primary health, and education.
(4) *Tax reform*. This includes broadening of the tax base, improved tax administration, sharpening of tax incentives, reduced marginal tax rates, diminished tax evasion and loopholes, and taxing interest on assets held abroad.
(5) *Financial liberalization*. The immediate objectives are to abolish preferential interest rates for privileged borrowers and charge nominal interest rates in excess of inflation rates, whereas the ultimate objective is market-determined interest rates to improve capital's allocative efficiency.
(6) *Exchange rates*. Countries need a unified, competitive rate to spur a rapid expansion in exports.
(7) *Trade liberalization*. LDCs should replace quantitative restrictions with tariffs, and progressively reduce tariffs until they achieve a uniform low tariff rate (about 10–20 percent).
(8) *Domestic savings*. Fiscal discipline, cutbacks in government spending, tax reform, and financial liberalization divert resources from the state to highly productive private sectors, where savings rates are higher. The neoclassical growth model, discussed later, emphasizes the importance of savings and capital formation for rapid economic development.
(9) *Foreign direct investment*. Neoclassicists favor abolishing barriers to the entry of foreign firms; additionally, foreign firms should compete with domestic firms on equal terms.
(10) *Privatization*. State enterprises should be privatized.
(11) *Deregulation*. Governments should abolish regulations that impede new-firm entry and restrict competition unless safety or environmental protection justifies regulations.

(12) *Property rights*. The legal system should provide secure property rights without excessive costs to all land, capital, and buildings (Williamson 1993:1329–1936).

Williamson (1993:1329), prodded by both economists from Washington and LDCs, indicates that "Washington consensus" is a misnomer, and that these policies more accurately reflect a "universal convergence" of DC and LDC (especially Latin American) capitals, albeit with support from the three major Washington institutions. Indeed, there is widespread (although not universal) consensus among economists favoring more reliance on market prices to improve the efficiency of resource allocation, monetary and fiscal discipline, improved tax administration, trade and exchange liberalization, and secure and exclusive user or property rights. Although few economists argue with the need for selective deregulation, opponents of neoclassicals feel they fail to realize the extent to which externalities, public goods, and income distribution limit the scope of deregulation. Additionally, although many of these opponents support liberalization of entry and improved competition policy for activities previously restricted to the public sector, they oppose the neoclassical emphasis on rampant privatization.

Critics see other problems with the neoclassicals. Cutbacks in government spending may depress the economy, and usually require that spending on education, nutrition, and social services be reduced. The neoclassicals' concern with decontrol and deregulation may turn a blind eye toward preventing global industrial concentration (such as the coffee roasting and processing oligopoly discussed in Chapter 7 and oligopolies in athletic footwear and agricultural biotechnology). Even when privatization is desirable, government may want to proceed slowly to avoid a highly concentrated business elite being created from newly privatized firms falling into a few hands, as was true in Nigeria and many other African countries during the 1970s. The emphasis on openness to foreign investment and abolition of lending to preferred domestic borrowers may increase monopolistic power within the economy and restrict opportunities for domestic capitalists and entrepreneurs to learn from experience. Paul Mosley, Jane Harrigan, and John Toye (1991, vol. 1:110–116) argue that, given LDC labor and resource immobility, immediate liberalization of external trade and supply-side stimulation in "one glorious burst" result in rising unemployment, inflation, and capital flight, and the undermining of efforts to bring the international balance of payments into adjustment. Although few would dispute the advantages of a *single* country striving for competitive exchange rates to expand exports, a given LDC may face an export trap, in which its export growth faces competition from other LDCs under pressure to expand exports. Furthermore, critics charge that the neoclassical model for liberalization and adjustment hurts disadvantaged portions of the population without providing safety nets for the poor.

Neoclassicals generally favor comprehensive change to liberalization, an immediate "big bang" or "shock therapy" (see Chapter 19) rather than a gradual adjustment in price decontrol, market creation, reduction in government spending, monetary restriction, deregulation, legal changes, and privatization. Historical experience in

the 19th-century and 20th-century West and Japan indicates that economic liberalization requires changes in economic institutions, which can only occur step by step. As the economic historian Douglass C. North (1994:359) argued in his Nobel lecture:

> Neoclassical theory is simply an inappropriate tool to analyze and prescribe policies that will induce development. It is concerned with the operation of markets, not with how markets develop. How can one prescribe policies when one doesn't understand how economies develop?

According to Moisés Naím (2002), the Washington consensus's "core ideas are far better than the damaged brand [that] now emits the poisonous odours of a recipe concocted in Washington by a cabal of inept technocrats who are out of touch with the realities of poor countries or, even worse, are in the pockets of Wall Street." For Nobel laureate Joseph Stiglitz, "the net effect of the policies set by the Washington Consensus has all too often been to benefit the few at the expense of the many, the well-off at the expense of the poor." Williamson (2003a:326) "once attempted to engage Stiglitz in a debate about the Washington Consensus. He declined to participate on the ground that he and I disagree little about substance as opposed to semantics and he did not consider semantics to be worth debating."

Williamson (2003b:11) argues that the Washington consensus, interpreted as the position of the IMF, World Bank, and U.S. administration, is "inoperative" today. The World Bank's increased focus on reducing LDC income inequality (Chapter 6) contrasts with "the Bush administration's disdain for any concern about income distribution" (ibid., p. 12). Moreover, since the 1997–98 Asian crisis (Chapter 16), the IMF has retreated on the necessity of capital account liberalization, whereas the U.S. administration, Williamson indicates, is using "trade agreements to bully countries like Chile and Singapore into emasculating even the most enlightened capital controls" (ibid., p. 12). Finally, the IMF has disapproved of the U.S. administration's large budget deficits, whereas both the Bank and Fund have been critical of U.S. protectionism on agriculture, steel, and textiles. Any post–Washington consensus must preclude procyclical (and lax) fiscal policy, excessive capital inflows, comprehensive capital account liberalization, weak prudential banking supervision, currency rigidity and overvaluation (especially currency boards that tie currencies to the U.S. dollar or other hard currencies), emphasis on import liberalization without attention to export market access, and inattention to institutional reform (Williamson 2003b:10–13; Kuczynski and Williamson 2003:1–19). With differences among Washington institutions on income distribution and capital controls, and the U.S. administration straying from orthodoxy on trade liberalization and fiscal policy, the Washington consensus is not "inoperative" but slightly altered.

Much more needs to be said about the neoclassical position, the leading approach in economics departments in the United States, Canada, and the United Kingdom, and among the world's major lending institutions, and an important influence among economists in most of the rest of the world. But the subject is too large to be covered in a single chapter. Chapters 6 and 7 examine income distribution policies, Chapters 8–12 factor market policies, Chapter 13 environmental policies,

Chapter 14 monetary and fiscal policies, Chapters 15–17 international trade and exchange-rate liberalization, Chapter 18 government planning, and Chapter 19 policies toward financial stabilization, external adjustment, and privatization. The neoclassical agenda is at the center of these controversies about prices, markets, ownership, and financial policies. These controversies will help you arrive at a clearer position concerning neoclassical economics.

The Neoclassical Growth Theory

The MIT economist Robert Solow won a Nobel Prize for his formulation of the **neoclassical theory of growth**, which stressed the importance of savings and capital formation for economic development, and for empirical measures of sources of growth. Unlike the Harrod–Domar model of growth, discussed in the appendix to this chapter, which focused on capital formation, Solow allowed changes in wage and interest rates, substitutions of labor and capital for each other, variable factor proportions, and flexible factor prices. He showed that growth need not be unstable, because, as the labor force outgrew capital, wages would fall relative to the interest rate, or if capital outgrew labor, wages would rise. Factor price changes and factor substitution mitigated the departure from the razor's edge of the Harrod–Domar growth path.

Because aggregate growth refers to increases in total production, we can visualize growth factors if we examine the factors contributing to production. We do this in a **production function** stating the relationship between capacity output and the volume of various inputs.

Solow used the following Cobb–Douglas production function, written in the 1920s by the mathematician Charles Cobb and the economist Paul Douglas (later U.S. Senator from Illinois), to distinguish among the sources of growth – labor quantity and quality, capital, and technology. The equation is

$$Y = TK^{\alpha} L^{\beta} \tag{5-1}$$

where Y is output or income, T the level of technology, K capital, and L labor. T is neutral in that it raises output from a given combination of capital and labor without affecting their relative marginal products. The parameter and exponent α is $(\Delta Y/Y)/(\Delta K/K)$, the elasticity (responsiveness) of output with respect to capital (holding labor constant). (The symbol Δ means increment in, so that, for example, $\Delta Y/Y$ is the rate of growth of output and $\Delta K/K$ the rate of growth of capital.) The parameter β is $(\Delta Y/Y)/(\Delta L/L)$, the elasticity of output with respect to labor (holding capital constant) (Cobb and Douglas 1928:139–165; Thirlwall 1977:52–54). If we assume $\alpha + \beta = 1$, which represents constant returns to scale (that is, a 1 percent increase in both capital and labor increases output by 1 percent, no matter what present output is), and perfect competition, so that production factors are paid their marginal products, then α also equals capital's share and β labor's share of total income. (Constant returns to scale, where output and *all* factors of production vary by the same proportion, still entail diminishing returns, where *increments* in output

BOX 5-1. ARE SOLOW MODEL PREDICTIONS PLAUSIBLE?

We can illustrate the neoclassical bias toward convergence if we compare the United States and the Philippines in 1992. The United States had 110 times the Philippines' net national product (Y), 3.67 times the Philippines' labor force (L), and, according to neoclassical assumptions, the same level of technology (T). A growth rate by the United States at the same rate as the Philippines' requires either capital formation rates or β values that are not plausible.

A benchmark for β is 0.6, so that α is 0.4. Plugging these values and Y and L into Equation 5-1 requires that K (capital stock) in the United States be 18,050 times that of the Philippines for the United States to attain the same growth rate as that of the Philippines. But assume, as the neoclassicals do, that the capital requirement per unit of output is fixed, so that the ratio of capital to income is the same as the ratio of savings or investment to additional income (savings and investment rates are the same, given the neoclassical assumption of a **closed economy**, one with no foreign trade or investment); then the U.S. capital stock is only 92 times that of the Philippines'. For the Philippines' savings rate to be its 1992 rate (18 percent) and for K in the United States to be 18,050 times that of the Philippines, the neoclassical model requires the United States to save 2,943 percent, a preposterous figure, instead of its 1992 figure, 15 percent.

What are α and β if the U.S. net national product is 110 times that of the Philippines, the U.S. labor force is 3.67 times that of the Philippines, and U.S. capital stock 92 times that of the Philippines (Mankiw, Romer, and Weil 1992: 407–437; World Bank 1994i)? The answer is $\alpha = 1.05$ and $\beta = -0.05$. But a negative β is absurd, meaning that labor's share and marginal product are both negative.

fall with each successive change in *one* variable factor.) The Cobb–Douglas production function allows capital and labor to grow at different rates (Solow 1956:65–94; Solow 1970; Kindleberger and Herrick 1977:81; Chenery, Robinson, and Syrquin 1986:17).

The neoclassical model predicts that incomes per capita between rich and poor countries will converge. But empirical economists cannot find values for parameters and variables (such as α, β, and capital formation rates) that are consistent with neoclassical Equation 5-1 and the evidence of lack of convergence presented in Chapter 3 (see Box 5-1). Without modification or augmentation, the Solow model is a poor predictor.

Can we modify neoclassical assumptions to arrive at plausible numbers that are consistent with no convergence? Gregory Mankiw, David Romer, and David Weil (1992:407–437) argue that although the direction of the variables, the growths in capital and labor, is correct, the magnitudes of these growths on income growth are excessive. These three economists propose an augmented Solow neoclassical model, which includes human capital as an additional explanatory variable to physical capital and labor.

Human capital, as well as physical capital, can yield a stream of income over time. The Nobel economist Theodore W. Schultz (1964) argues that a society can invest in its citizens through expenditures on education, training, research, and health that enhance their productive capacity. Although there are diminishing returns to physical

capital by itself, there are constant returns to all (human and physical) capital (Lucas 1998:3–42).

Given the fact that such a large percentage of capital stock is human capital, Mankiw, Romer, and Weil (1992:407–437) expected that adding a human capital variable, the fraction of the working-age population that attends secondary school, would improve the explanation of the model. Mankiw et al.'s augmented model substantially reduces labor's share of income from about 0.60 to 0.33. They modify Equation 5-1 to

$$Y = TK^{1/3}L^{1/3}H^{1/3} \tag{5-2}$$

where H is human capital. H's positive correlation with savings rates and population growth substantially alters the results. Adding human capital, which explains 80 percent of the variation between rich and poor countries, does indeed give plausible values for the neoclassical growth model. Mankiw et al.'s model means that, with similar technologies and rates of capital and labor growths, income growth should converge, but much more slowly than that predicted by Solow's model (Equation 5-1).

CRITIQUE

But although Mankiw et al. salvaged the neoclassical growth model, it still has several weaknesses, including the assumptions that markets are perfectly competitive (essential for computing the marginal products that are components of α, β, and the human capital exponent), that technological change is exogenous (explained outside the model), and that the level of technology is the same throughout the world. Indeed, neoclassical technical progress takes place completely independent of decisions by people, firms, and governments.

The New (Endogenous) Growth Theory

The University of Chicago's Robert Lucas finds that international wage differences and migration are difficult to reconcile with neoclassical theory. If the same technology were available globally, skilled people embodying human capital would *not* move from LDCs, where human capital is scarce, to DCs, where human capital is abundant, as these people do now. Nor would a given worker be able to earn a higher wage after moving from the Philippines to the United States (Lucas 1988:3–42; Romer 1994:11). Moreover, Harvard's Robert Barro and Xavier Sala-i-Martin observe that diminishing returns to capital in the neoclassical model should mean substantial international capital movements from DCs, with high capital–labor ratios, to LDCs, with low capital–labor ratios. These capital movements should enhance the convergence found in Solow's model, in contrast to the lack of convergence found in the real world.[7] Additionally, most LDCs attract no net capital inflows, and many LDCs

[7] Barro and Sala-i-Martin (1992:223–251). Barro, Mankiw, and Sala-i-Martin (1995:103–115), who examine samples of U.S. states and OECD countries (but not DCs and LDCs together), find that, in neoclassical models, the quantitative effect of including capital mobility in explaining convergence is small.

even experience domestic capital flight. New growth theorists think their model is closer to the realities of international flows of people and capital than the neoclassical model.

Paul Romer (1994:8–9; 1986:1002–1037; 1990:S71–S102), a University of California-Berkeley economist, believes that if technology is **endogenous**, explained within the model, economists can elucidate growth where the neoclassical model fails. When the level of technology is allowed to vary, you can explain more of growth, as DCs have higher level than LDCs. Variable technology means that the speed of convergence between DCs and LDCs is determined primarily by the rate of diffusion of knowledge. For **new growth theorists** such as Romer, **innovation** or technical change, the embodiment in production of some new idea or invention that enhances capital and labor productivity, is the engine of growth. The endogenous theorists, whose message is continuous technological innovation, are the strongest antidotes to the limits-to-growth literature discussed in Chapter 13.

Neoclassical theorists assume that technological discoveries are global public goods, so that all people can use new technology at the same time. Indeed, it is technologically possible (but not historically accurate) for every person and firm to use the internal-combustion engine, the transistor, the microcomputer, and other innovations. For new growth economists, however, technological discovery results from an LDC's government policies (the neoclassical growth theorists have no role for the state) and industrial research.

Neoclassical economists assume that the innovator receives no monopoly profits from their discoveries. However, because individuals and firms control information flows, petition for patents to restrict use by rivals, and charge prices for others to use the technology, new growth economists assume a temporary monopoly associated with innovation (see the discussion of the Schumpeterian entrepreneur in Chapter 12). Note the concentration of high-technology industries in particular locations such as the Silicon Valley, in Santa Clara County, California, and Route 128, which runs around Greater Boston. Private and government support for technological concentration and control breaks down the assumption of perfect competition, as well as the ability to compute factor shares.

Neoclassical economists emphasize capital formation. New growth economists, by contrast, stress external economies to capital accumulation that can permanently keep the marginal product of physical or human capital above the interest rate, and prevent diminishing returns from generating stagnation (Romer 1994:3–22; Grossman and Helpman 1994:23–44).

CRITIQUE

The endogenous growth model, like Mankiw et al.'s neoclassical model enhanced by human capital, generates plausible numbers and is consistent with persistent differences in income per capita between nations (that is, no or little convergence between nations). Indeed, both models are consistent with a large number of observations concerning aggregate output and capital. Howard Pack (1994a:55–56), however, considers endogenous growth theory as only a rich expansion of neoclassical growth

theory rather than a powerful organizing framework about actual growth. Also, as Solow (1994:50–51) argues, the knife-edge character of the model means that any disequilibrium can cause the model to break down. Moreover, technology is growth in output unexplained by the increase in measured factors of production. Could we explain technical advance by increased investment in resources, such as research and development (R&D)? Surely purposive, profit-seeking investment in knowledge is a key to explaining technological progress (Pack 1994a:55–72; Grossman and Helpman 1994:24). Others suggest international trade, government macroeconomic policies, learning by doing, or other variables discussed in future chapters. Furthermore, the endogenous growth theory, similar to the neoclassical growth theory, fails to discuss how changes in incentives or institutions affect the variables of the model and the rate of economic growth.

Solow (1994:52) contends that "the 'production' of new technology may not be a simple matter of inputs and outputs." Indeed, R&D is an inadequate measure of resources devoted to increasing productivity. A producer's investment in research and development may contribute to growth that is disseminated to other producers. In many instances, however, as in microcomputers, economies may require substantial time before production reorganization contributes to increased productivity. Moreover, some investment in R&D may net no growth at all. Furthermore, some LDCs may be able to increase capital and labor productivity by using existing technologies without any new investment in R&D. For Solow (1994:45–54), the lack of correspondence between investment in technology and economic growth means that much of R&D is, as neoclassicists contend, exogenous to the economy. Neither the new growth theorists' measures of R&D nor the neoclassicals' measures of human capital explain much of the extraordinary growth of Asian NICs – South Korea, Taiwan, and Singapore – during the last quarter of the 20th century (Pack 1994a:60–63). Econometric models have not yet been able to break down technological innovations and economic growth into measured inputs, and it is doubtful that they will.

Conclusion

The English classical economist David Ricardo feared eventual stagnation from slow capital accumulation, and diminishing returns from population growth on fixed natural resources. However, he failed to see the possibility of sustained, rapid, economic growth because his theory understated scientific discoveries and technological progress.

Marx saw history dialectically – as progressing from feudalism to capitalism to socialism on the basis of class conflict. The oppressed classes overthrow the classes controlling the prevailing means of production. Nevertheless, the socialist revolution did not take place in the most advanced capitalist countries, nor did workers overthrow capitalism when they became a majority of the labor force, as Marx expected.

Rostow's economic model has five stages; its central historical stage is the takeoff, a decisive period of increased investment, rapid growth in leading sectors, and institutional change during which the major blocks to steady growth are finally overcome.

Rostow's theory has several weaknesses: insufficient empirical evidence concerning conditions needed for takeoff; imprecise definitions; no theoretical ground for a society's movement from one stage to another; and the mistaken assumption that economic development in LDCs will parallel the early stages of DC development.

The vicious circle theory contends that a country is poor because its income is too low to encourage potential investors and generate adequate saving. However, high income inequality, funds spent on prestige projects and the military, and numerous products requiring few economies of scale suggest that the savings potential of LDCs is much greater than this theory envisions.

Balanced growth advocates argue that a big push is needed to begin economic development because of indivisibilities in demand and infrastructure. Critics indicate that most LDCs do not have the resources essential for launching such a big push.

Hirschman supports a deliberate unbalancing of the economy to facilitate economic decision making and investment. However, he fails to stress the importance of agricultural investment.

Kremer's O-ring theory of development emphasizes that production consists of many tasks, all of which must be successfully completed for the product to have full value and to prevent coordination failure.

For Lewis, economic growth takes place as a result of growth in the size of the industrial sector, which saves, relative to the subsistence agricultural sector, which saves nothing. In the Lewis model, an unlimited supply of surplus farm labor migrates to urban areas for wages in excess of rural, subsistence wages. This supply of cheap labor to the industrial sector is the basis for profits and capital accumulation. However, critics question Lewis's premise of zero marginal productivity of labor and believe that the capitalist wage rate will rise before all surplus rural labor is absorbed.

Fei and Ranis, too, believe that the capitalist wage will increase before surplus labor is absorbed, unless agriculture and industry can achieve balanced growth. However, contrary to the Lewis–Fei–Ranis model, Japan raised its capitalist wage rate before all surplus rural labor was absorbed.

For Baran, the coalition of the bourgeoisie and landed classes, helped by foreign capitalist governments, is incapable of undertaking the capital formation and political reform required for rapid economic growth and alleviation of mass poverty. Although Baran's vision of a ruling progressive coalition is intriguing, he underestimates the conflicts of interest and class antagonism that are likely to occur under its rule.

Furtado's dependency theory contends that increased productivity and new consumption patterns resulting from capitalism in the peripheral countries of Asia, Africa, and Latin America benefit a small ruling class and its allies.

Frank's dependency approach maintains that countries become underdeveloped through integration into, not isolation from, the international capitalist system. However, despite some evidence supporting Frank, he does not adequately demonstrate that withdrawing from the capitalist system results in faster economic development.

The neoclassical counterrevolution to Marxian and dependency theory emphasized reliance on the market, private initiative, and deregulation in LDCs. Neoclassical growth theory emphasizes the importance of increased saving for economic growth.

The Washington institutions of the World Bank, IMF, and the U.S. government have applied neoclassical analysis in their policy-based lending to LDCs.

The new endogenous growth theory arose from concerns that neoclassical economics neglected the explanations of technological change and accepted an unrealistic assumption of perfect competition. The new growth theory, however, does no better than an enhanced neoclassical model in measuring the sources of economic growth.

TERMS TO REVIEW

- accelerator
- backward linkages
- balanced growth
- big push thesis
- classical theory
- closed economy
- commercialization (turning) point
- demonstration effect
- dependency theory
- economic liberalism
- endogenous
- external economies
- forward linkages
- historical materialism
- human capital
- ICOR (incremental capital output ratio)
- indivisibilities
- infrastructure
- innovation
- institutional wage
- International Monetary Fund (IMF)
- invisible hand
- iron law of wages
- labor supply elasticities
- laissez-faire
- law of diminishing returns
- Lewis–Fei–Ranis model
- neoclassical counterrevolution
- neoclassical theory of growth
- neoclassicism
- new (endogenous) growth theory
- Organization for Economic and Cooperation and Development (OECD)
- O-ring theory of economic development
- preconditions stage
- price elasticity of demand
- production function
- reserve army of the unemployed
- surplus
- takeoff
- theory
- unbalanced growth
- vicious circle
- virtuous circle
- Washington consensus
- World Bank

QUESTIONS TO DISCUSS

1. Is Ricardian classical economic theory applicable to LDCs?
2. How valid is the assumption that the development of LDCs will parallel the earlier stages of today's DCs?
3. Choose one developed country (or one LDC that Rostow says has already experienced takeoff). How well does Rostow's stage theory explain that country's economic growth?

4. Which historical theory – Marx's or Rostow's – is more useful in explaining Western economic development? Contemporary LDC development?
5. Are some of today's LDCs closer to Marx's feudal stage than his capitalist stage? What might a Marxist recommend for a LDC in the feudal stage? Would a Leninist or Baranist prescription for a feudal LDC be any different from Marx's?
6. How might Marxian economic analysis (like Mao's or Bettelheim's) threaten political elites in socialist countries?
7. How valid is Baran's theory in explaining contemporary underdevelopment in Asia, Africa, and Latin America? Are revolution and a Soviet-type government essential for removing this underdevelopment?
8. How valid is Baran's theory in explaining the weaknesses of New-Deal-type regimes in LDCs?
9. How does Andre Gunder Frank differ from Karl Marx in judging Western capitalism's influence in Asia, Africa, and Latin America?
10. For which country has dependence on Western capitalist economies been most costly? For which country has dependence on Western capitalist economies been most beneficial? On the basis of arguments about these two countries, how persuasive is Frank's dependency theory?
11. What are some potential LDC vicious circles? How plausible are these as barriers to development?
12. How are wages determined in the subsistence and capitalist sectors in the Lewis model?
13. What is Lewis's explanation for the expansion of the industrial capitalist sector? Why do critics think that the Lewis model overstates rural–urban migration and industrial expansion?
14. How well does the Lewis–Fei–Ranis model explain Japan's economic growth in the early part of the 20th century?
15. How important are supply and demand indivisibilities in influencing LDC investment strategies?
16. How well does coordination failure or its overcoming explain the economic development of LDCs? Give examples.
17. What is the neoclassical theory of economic development? Theory of economic growth? What are the policy implications of the neoclassical theory of development and growth? How effective have neoclassical policy prescriptions been for stimulating economic growth in developing countries?
18. How effective was Mankiw, Romer, and Weil's modification in increasing the plausibility of neoclassical growth theory?
19. What were the weaknesses of the neoclassical theory of growth and development that gave rise to the new endogenous growth theory? How does the new growth theory address the neoclassical weaknesses? What are the strengths and weaknesses of new growth theory?
20. Choose a country or world region. Which economic development theory best explains development in that country or region?

GUIDE TO READINGS

Higgins (1968) has a detailed discussion and evaluation of the models of classical economists, Marx, Rostow, and balanced and unbalanced growth theorists. Adelman (1961) on growth and development theories analyzes the classical and Marxian models, as well as several other major theories. Enke (1963) has a concise outline and critique of the classical approach. Eatwell, Milgate, and Newman (1989) discuss Lewis, Nurkse, Rosenstein-Rodan, balanced growth, Hirschman, linkages, and Fei and Ranis's labor surplus economy.

Rostow's stage theory was criticized by economists and historians at the 1963 International Economic Association meetings in Konstanz, West Germany. The papers have been compiled in a book edited by Rostow (1963).

Nurkse (1953) presents his views of the vicious circle and balanced growth theories. Nurkse's summary article, Rosenstein-Rodan's (1943) article on indivisibilities, Fleming's (1955) criticism of balanced growth, Myint's (1954) article, Rostow's presentation of his stage theory in condensed form, Lewis (1954), and Baran's (1952) article on economic backwardness are included in Agarwala and Singh (1958).

The major statements of the dependency theory are Furtado (1968, 1970, 1973) and Frank (1969b, 1969a). Lall (1975) has a useful critique and bibliography of dependence theory.

Immanuel Wallerstein's view of core-periphery and Samir Amin's perspective on nationalism are in Eatwell, Milgate, and Newman (1989).

Weaver and Jameson (1981) discuss competing approaches for explaining economic development, including orthodox and Marxist theories.

Lewis (1954), Ranis and Fei (1961:533–565), and Fei and Ranis (1964) present the Lewis–Fei–Ranis model.

On neoclassical growth theory, see Solow (1956, 1970) and Mankiw et al. (1992). Lucas (1988) and Romer (1994) discuss new growth theory. For a highly accessible discussion and bibliography of both neoclassical and new growth theory, see Romer (1994), Grossman and Helpman (1994), Solow (1994), and Pack (1994). On convergence, see Romer (1994) and Barro and Sala-i-Martin (1992). Bardhan (1995) evaluates endogenous growth theory.

Khan, Montiel, and Haque (1990:155–179) present IMF–World Bank macroeconomic models. For various macroeconomic adjustment models, including those for Iran, Venezuela, Singapore, and South Korea, see Khan, Montiel, and Haque (1991).

Weeks (1993) criticizes neoclassical development economics and the Washington consensus.

Some may prefer to include Joseph A. Schumpeter's theory of growth and business cycles (Chapter 12) with the theories of this chapter.

APPENDIX TO CHAPTER 5

The Harrod–Domar Model

The Harrod–Domar Model and Capital Requirements

Capital formation and the ***ICOR*, the incremental capital output ratio**, the inverse of the ratio of increase in output to investment, are fundamental variables in the **Harrod–Domar growth model**. If Y is income, K capital stock, and I investment, then the $ICOR$ is $(\Delta K/\Delta Y)$, the increment in capital divided by the increment in income, the same as $(I/\Delta Y)$, since $\Delta K \equiv I$ by definition.

Evsey D. Domar (1947:34–55) emphasizes that present investment, while contributing to aggregate demand today, also provides new productive capacity. If this capacity is not adequately used, it discourages future investment, thus increasing surplus capital and depressing the economy. But if investment increases at the correct rate, aggregate demand will be sufficient to use fully the newly added capacity. Domar indicates the rate at which investment would have to grow for this process to take place. Investment must grow at a constant percentage rate

$$\Delta I/I = (1/ICOR)\,(\alpha) \tag{5-3}$$

since α, the marginal propensity to save, the ratio of the increment in savings to the increment in income, and the $ICOR$ are both constant.

Roy F. Harrod (1939:14–33) is also concerned with keeping total spending and productive capacity in balance, but he focuses on the growth path of income, unlike Domar's concentration on the growth rate of investment. In the Harrod model, the equilibrium (or warranted) growth rate keeps planned savings equal to planned investment, that is,

$$sY_t = ICOR\,(Y_t - Y_{t-1}) \tag{5-4}$$

$$(Y_t - Y_{t-1})/Y = s/ICOR \tag{5-5}$$

where s is (S_t/Y_t), the average propensity to save.

Harrod goes beyond Domar's explanation of what investment must be for sustainable growth to include a theory of what determines investment. He calls his notion the **accelerator** theory of investment; that is, investment today (I_t) is partly dependent on income today minus that of yesterday $(Y_t - Y_{t-1})$, reflected in the $ICOR$ relationship.

Harrod also discusses what happens if the actual growth rate does not equal the warranted rate, that is, planned savings does not equal planned investment. He

concludes that the warranted growth path is like a razor's edge, since a departure of the actual growth rate $[(Y_t - Y_t - 1)/Y_t]$ from the warranted path causes a further departure in the same direction, throwing the economy into a period of either explosive growth (producing inflation) or stagnation.

The model's instability follows from some peculiar assumptions about producer behavior. If producers guessed correctly yesterday about demand and their supply just equaled market demand, they will plan today to increase their output by the *same percentage* as they increased it yesterday. If they produced too much, they will reduce yesterday's growth rate of output and again produce too much today because demand will fall below expectations. If they produced too little yesterday, so there was excess demand, today's output growth will increase over yesterday's and there will again be excess demand. One possibility Harrod considers is that the warranted growth path may not be attainable because of limitations in the growth of capacity, that is, his "natural" growth rate.

There are several problems with the Harrod–Domar model. The first is Harrod's assumption about producer behavior, including the premise that producers do not modify behavior as they learn how the economy previously responded to divergences between warranted and actual growths. Harrod's behavioral assumptions may be even less relevant when the state has a major role in planning output expansion. The second problem is that Harrod's accelerator has no lag, implying that capital goods are produced simultaneously with the increased output requiring this production. A third problem, which is also characteristic of the Domar model, is the assumption of fixed capital–labor proportions, which omits the possibility of adjusting capital–labor ratios to avoid surplus capital, and output ceilings that might cause the warranted rate to be the actual rate. Models that allow for substitution between factors – such as the neoclassical growth model and others using a Cobb–Douglas approach – overcome this last problem of the Harrod–Domar model.[8]

Nafziger's supplement (2006b) discusses *ICOR*s and capital requirements in Lewis's and Rostow's focus on increasing investment rates.

[8] Ackley (1961:513–526); Shapiro (1978:402–413). I am grateful for the help of Edgar S. Bagley.

6 Poverty, Malnutrition, and Income Inequality

How can we provide a good quality of life and productive work for the 700–1000 million people (10–15 percent) of the world's 6.5 billion people who are poor or living on no more than $1 a day?[1] Economic growth is the most important factor contributing to poverty reduction. Figure 6-1 shows that, for 99 DCs and LDCs, the growth rates of national income per capita for 1950 to 1999 are closely correlated with the growth of income per capita of the poorest 20 percent. The country in which you live, more than any other fact, determines your position within the world's economic class system. Branko Milanovic (2002b:78) indicates that 88 percent of total world inequality in 1993 results from between-country inequality, 2 percent from within-country inequality, and 10 percent from an overlap between inter-and intracountry inequality. Still, while the ratio of between-country to within-country income inequality increased globally, 1820 to 1960, from 1960 to the present this ratio has fallen back slightly to its level in the 1940s (Firebaugh 2003:23–30).

Information Sparsity

Gary S. Fields (1994:87) finds it regrettable that standard studies of country development provide great detail about macroeconomic conditions and the balance of payments without providing "information on who has benefited how much from economic growth and . . . who has been hurt how much by economic decline." Estimates of income distribution in most developing countries are, at best, approximations of the underlying distribution we wish to measure. Despite efforts since the early 1970s to investigate income inequality, these data are weaker than national income statistics.

The International Labor Organization (1981:29) suggests that using many of these data to make policy is like trying to run through the forest in the dark without a flashlight. Many of the official figures of government and international agencies on income distribution are not reliable or compatible over time or space (Lecaillon, Paukert, Morrisson, and Germidis 1984; Moll 1992:689–704). Frequently, the sample procedure for looking at inequalities is not adequate. Also income is understated not only for subsistence farmers (see Chapter 2) but also for the rich, who often understate income for tax purposes.

[1] $1/day in 1985 PPP; $1.50/day in 1993 PPP; and about $2/day in 2005 PPP.

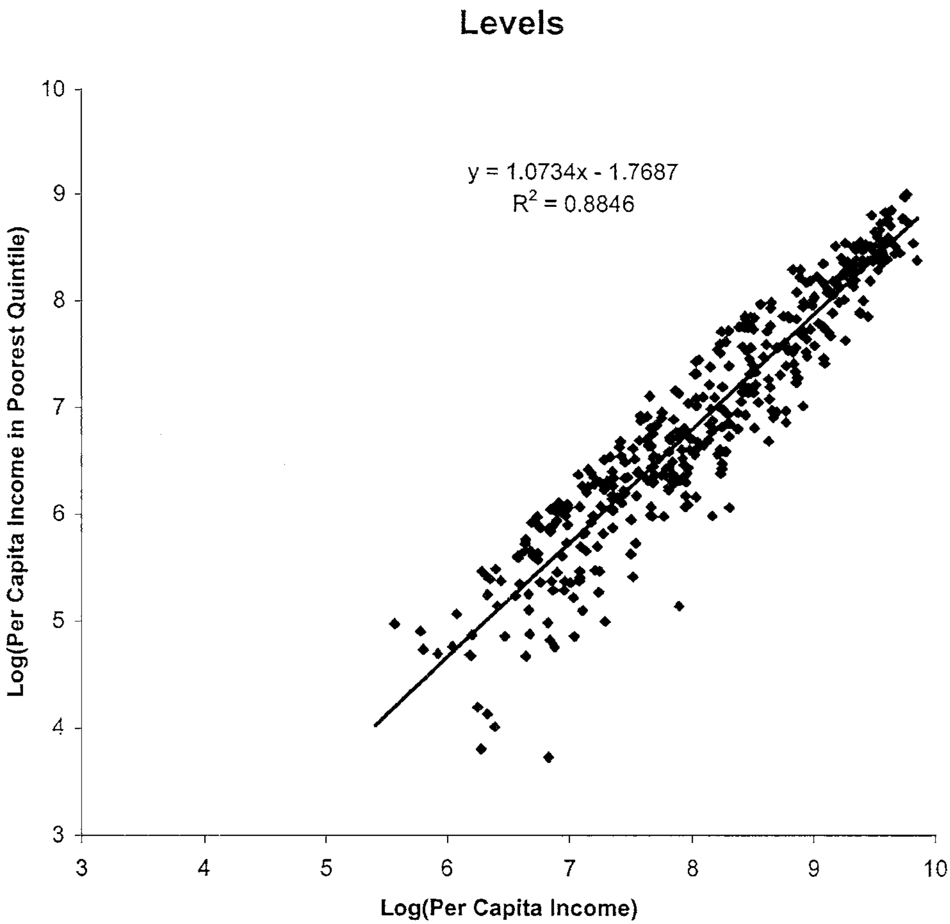


FIGURE 6-1. Incomes of the Poor and Average Incomes. *Source:* Dollar and Kraay 2002:223.

Moreover, scholars often do not indicate how income and the units sharing it are defined. Also, the factual basis of the estimates is sometimes unclear. Some figures appear to be produced on a very slender basis, but are frequently cited, gaining credence with each subsequent citation. A case in point is World Bank economist Montek S. Ahluwalia (1974:x), whose source for Sierra Leone cites the *Freetown Daily Mail,* which drew its information from the advance report of a 1966–68 household survey of the urban Western province, not representative of a primarily rural country. Additionally, the report measured only money income. Furthermore, it is not possible to compute Ahluwalia's figures from the original data (Rimmer 1984:43).

Good data are essential to know where to concentrate antipoverty programs. Regions, such as sub-Saharan Africa, which lack measures of incidence, intensity, and intrapoor income distribution, are also likely to have weak or nonexistent antipoverty policies (Lipton and van der Gaag 1993:3).

Economists need minimal standards for data admissibility. Fields indicates the following: (1) the database must be an actual household survey or census; (2) they

should encompass all income, including nonwage income; (3) data should include local price information, including rural–urban cost-of-living differences; (4) the data must be national in coverage; (5) they should be disaggregated at the canton, district, or county level to pinpoint programs of poverty reduction; (6) they should avoid lags between collection and publication, and long gaps between survey rounds; and (7) to compare across time, surveys, measures, and the income concept and recipient unit must be constant. For time-series consumption or income, household data and poverty lines need to be adjusted for inflation, frequently with high inflation rates. Although economists would prefer information on noncash income such as food and other goods produced at home, we may sometimes have no choice but to accept household surveys that ask for cash income (Fields 1994:89–90, 97; Deininger and Squire 1997:39; Ravallion 1996:201–208; World Bank 2003i:185–186).

Scope of the Chapter

Despite data weaknesses, a few careful studies can help us answer some questions about global income distribution and aggregate national poverty and income inequality, and suggest policies to reduce them. We begin by indicating the multifaceted nature of poverty. We examine global income inequality, and then discuss $1/day and $2/day poverty, global and regional poverty, the effect of poverty on access to education and health, what has happened to poverty since the beginning of the 19th century, the three measures of poverty and deprivation of the Nobel laureate Amartya Sen, his capabilities approach to poverty, the Lorenz curve and Gini index for measuring global and country income distribution, views of poverty by the World Bank and two critics, Kuznets's inverted-U explanation for changes in income distribution with growth, Adelman and Morris's dual-economy stage theory of the inverted-U curve, and the differences in poverty and inequality by (1) low-, middle-, and high-income countries; (2) DCs and LDCs; (3) slow- and fast-growing countries; and (4) gender. We analyze accompaniments of absolute poverty, identify subgroups within a country's population that are most hurt by poverty, and present several case studies of policies developing countries have used to influence poverty and income distribution. Finally, we suggest policies for reducing poverty and improving income distribution and discuss the relationship between inequality and political instability.

Poverty as Multidimensional

Deepa Narayan et al.'s (2000:4–5) study is based on numerous World Bank surveys and reports of a representative sample of 60,000 poor people from 60 developing countries during the 1990s. The World Bank and the authors ask two major questions: How do poor people view poverty and well-being? What are their problems and priorities? The poor see that

> Poverty is multidimensional. . . . Six dimensions feature prominently in poor people's definition of poverty. First, poverty consists of many interlocked dimensions.

> Although poverty is rarely about the lack of only one thing, the bottom line is always hunger – the lack of food. Second, poverty has important psychological dimensions, such as powerlessness, voicelessness, dependency, shame, and humiliation. The maintenance of cultural identity and social norms of solidarity helps poor people to continue to believe in their own humanity, despite inhumane conditions. Third, poor people lack access to basic infrastructure – roads (particularly in rural areas), transportation, and clean water. Fourth, while there is a widespread thirst for literacy, schooling receives little mention or mixed reviews. Poor people realize that education offers an escape from poverty – but only if the economic environment in the society at large and the quality of education improve. Fifth, poor health and illness are dreaded almost everywhere as a source of destitution. This is related to the costs of health care as well as to income lost due to illness. Finally, the poor rarely speak of income, but focus instead on managing assets – physical, human, social, and environmental – as a way to cope with their vulnerability. In many areas, this vulnerability has a gender dimension.

Caterina Ruggeri Laderchi, Ruhi Saith, and Francis Stewart (2003:243–274) discuss four approaches to defining and measuring poverty: the monetary, capability, social exclusion, and participatory approaches. The U.N. Development Program's *Human Development Report (HDR)* (2003:245–249, 342), assuming that poverty is multidimensional, calculates a human poverty index (HPI-1), based on three measures of deprivation: (1) probability at birth of not surviving to age 40; (2) adult illiteracy rate; and (3) lack of a decent standard of living, as measured by the average of the percentage of the population without sustainable access to improved water source and the percentage of children underweight under the age of five. In Costa Rica, with high human development, the probability of not surviving is 3.7 percent, illiteracy is 4.3 percent, the population without improved water is 5 percent, and children who are underweight is 5 percent. Other LDCs with low HPI-1 and high human development include Uruguay, Chile, and communist Cuba, with excellent health care and education, despite a low per-capita income.

Ethiopia, with low human development, has a 43.3 percent chance of surviving, a 59.7 illiteracy rate, 76 percent with no improved water, and 47 percent underweight. Nigeria, with low development, has percentage rates of 34.9, 34.6, 38, and 27, respectively. The African economies of Cameroon, Zimbabwe, Senegal, Rwanda, Tanzania, Côte d'Ivoire, Zambia, Angola, Congo (Kinshasa), and Burkina Faso, plus Pakistan and Haiti, also have low human development (U.N. Development Program 2003:245–247).

The World Bank (2001i:1) points out:

> Poor people live without fundamental freedoms of action and choice that the better-off take for granted. They [suffer] deprivations that keep them from leading the kind of life that everyone values. They also face extreme vulnerability to ill health, economic dislocation, and natural disasters. And they are often exposed to ill treatment by . . . the state and society.

Poverty reduces access to education (Chapter 10) and health and nutrition (Figure 6-6), increasing child mortality rates (number of deaths per 1,000 live births over

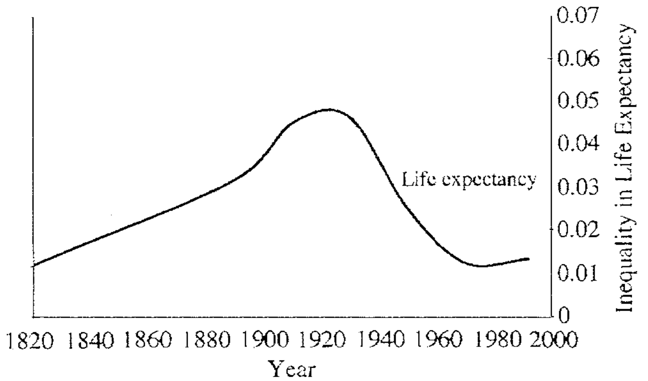


FIGURE 6-2. Evolution of International Inequality in Life Expectancy (Theil Index). *Source:* Bourguignon and Morrisson 2002:741.

the first five years) from 38 per 1,000 among the richest quintile (fifth) to 143 among the poorest quintile in Bolivia. Other LDCs, for example, Armenia, Central African Republic, and Cambodia, show similar differences between rich and poor within the same country. The World Bank (2004i:9) indicates similar differences between the top and bottom quintile in access to safe water and sanitation.

Yet the U.N.'s *HDR* (2003:2) indicates that

> The past 30 years saw dramatic improvement in the developing world. Life expectancy increased by eight years. Illiteracy was cut nearly in half, to 25%. And in East Asia the number of people surviving on less than $1 a day was almost halved just in the 1990s.
>
> Still, human development is proceeding too slowly. For many countries the 1990s were a decade of despair. Some 54 countries are poorer now than in 1990. In 21 a larger proportion of people is going hungry. In 14, most children are dying before age five. In 12, primary school enrollments are shrinking. In 34, life expectancy has fallen. Such reversals in survival were previously rare. A further sign of a development crisis is the decline in 21 countries in the human development index (HDI), a summary measure of three dimensions of human development – living [a] long and healthy life, being educated and having a decent standard of living. This too was rare until the late 1980s, because the capabilities captured by HDI are not easily lost.

Globally, however, "inequality in HDI declined sharply in the first half of the 20th century, and then declined even more dramatically in the second half" (Firebaugh 2003:118–119). Two of the three components of HDI have unambiguously converged: (1) global inequality in life expectancy has fallen dramatically since 1920 (Figure 6-2); and (2) world educational inequality has also continually declined. What has happened to the third component of HDI, income or standard of living? Global income distribution (if weighted by population) increased during the first half of the 20th century (ibid.) but has fallen since the 1970s (Figure 6-3) (Bhalla 2002:174, 181; Sala-I-Martin 2002:43–58; Firebaugh 2003:126–133).

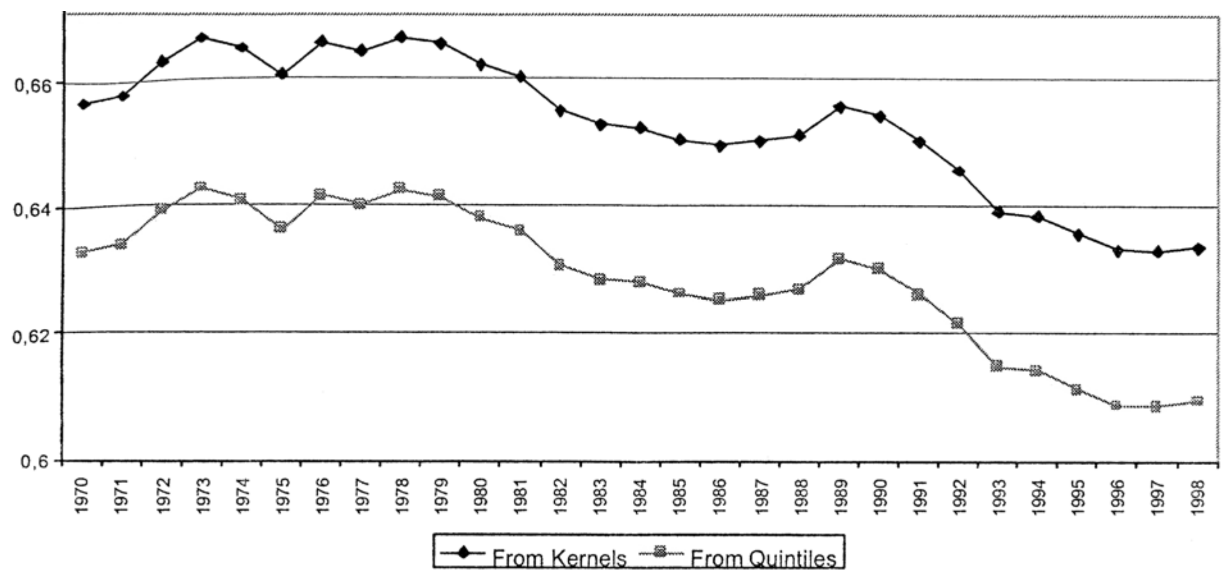


FIGURE 6-3. Global Income Inequality: Gini Coefficient, 1970–98. *Source:* Sala-i-Martin 2002:56, with method explained in the text.

How can we reconcile this with the *HDR*'s previous statement? As highly populated Asian countries such as China, India, and Indonesia accelerate their growths during the 1980s and 1990s, a large share of their incomes shift to the world's middle class, increasing its share in the global income distribution and thus reducing overall inequality (Sala-i-Martin 2002:13–15, 25–27). At the same time, a large number of sub-Saharan African countries increased their poverty rates, but, because of their relatively small populations, had little impact on global distribution. Indeed, sub-Sahara's total population weight during the early period, about 600 million, was far exceeded by Asia's more than three billion, of which China and India were each about one billion.

$1/Day and $2/Day Poverty

Absolute poverty, a different concept from income inequality, is below the income that secures the bare essentials of food, clothing, and shelter. Other essentials may be added, as for Indonesia, Bangladesh, Nepal, Kenya, Tanzania, and Morocco. Thus, determining this level is a matter of judgment, so that it is difficult to make comparisons between countries. Moreover, what is considered poverty varies according to the living standards of the time and region. The World Bank economists Martin Ravallion, Gaurav Datt, and Dominique van de Walle (1991:347–49) show that national poverty lines increase with mean consumption, although poverty lines are below the mean in all cases.

Accordingly, many Americans classified as poor by their government are materially better off than many Americans of the 1950s or Africans today who are not considered poor. The U.N. Development Program's *HDR* (2002:160) recognizes that the perception of poverty has evolved and varies tremendously across cultures, with the poverty line changing as economic growth takes place. Thus, as pointed out in Chapter 3, the poverty rate for DCs, HPI-2, includes functional literacy, survival rate to age 60, and a higher poverty line than for LDCs. Figure 6-4 shows the case in which the left tail of the DC (right) curve exceeds the LDC poverty line (P), which corresponds to 30 percent of the population in the LDC (left) curve.

Still, despite poverty's cultural relativity, Ravallion, Datt, and van de Walle (1991:345–361) set poverty lines at $PPP1 a day and $PPP2 a day in 1985, corresponding to $PPP1.08/day and $PPP2.15/day in 1993 (World Bank 2003i:246) and annual incomes of $PPP532 and $PPP1,064 in 1998 (Sala-i-Martin 2002:17). The lower line, $1 per day, recognized as the absolute minimum by international standards, is based on a standard set in India, the country with the most extensive literature on the subject and close to the poverty line of perhaps the poorest country, Somalia (Ravallion, Datt, and van de Walle 1991:348). The assumption is that two persons with the same purchasing-power-adjusted income (not including nonincome factors, such as access to public services) living in different countries will have the same measured poverty.

The Bank uses a definition based on previous work by its economists Montek S. Ahluwalia, Nicholas G. Carter, and Hollis B. Chenery (1979:299–341). These

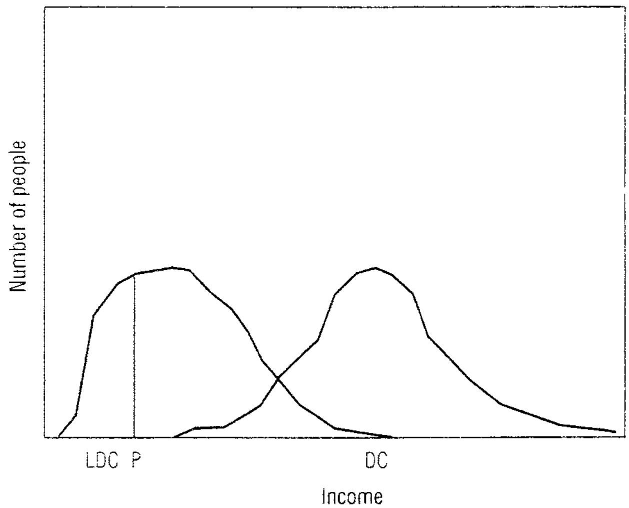


FIGURE 6-4. Income Distribution in Rich and Poor Countries.

economists, who assume a population with a "normal" distribution by age and gender, define the lower poverty line as the income needed to attain basic nutritional needs, that is, a daily supply of 2,250 calories per person.[2] The 2,250 calories would be met by the following diet: 5 grams of leafy vegetables, 110 grams of other vegetables (potatoes, root vegetables, gourds, and so on), 90 grams of milk, 35 grams of oil, 35 grams of sugar, 10 grams of flesh foods (fish and meats), 45 grams of pulses (peas or other legumes), and 395 grams of cereals (rice, corn, millet, or wheat).[3] To illustrate, the 395 grams of cereals might consist of about two cups of hot prepared rice, equivalent in weight to 54 percent of the total diet.[4] Data on income distribution for

[2] Dasgupta (1993:404) indicates that undernourishment studies for LDCs focus on calorie deficiency, as "diets are such that protein requirements could be expected to be met if calorie needs were met." He also discusses tropical calorie requirements for maintenance, for physical activities, and for heavy manual work for a male subsistence farmer (ibid., pp. 422–423).

[3] There are several problems with defining a poverty line in terms of income needed to ensure a given supply of calories: (1) there is a substantial variation in the age and gender composition from one population to another; (2) caloric intakes at a given level of expenditure vary considerably; (3) specifying a single caloric norm is questionable; (4) variations in caloric requirements for the same individual occur; and (5) other nutrients, such as protein, vitamins, and minerals, are not considered. Nevertheless, Scrimshaw and Taylor (1980:81) indicate that as income rises, the consumption of other nutrients rises along with caloric consumption.

The adequacy of calories and other nutrients also depends on nonnutritional factors as well, including potable water, immunization, general medical care, sanitation, and personal hygiene (Dasgupta 1993:405).

For criticisms of the World Bank approach and a proposal for an improved method of measuring poverty, see Bhanoji Rao (1981:337–353). Feres (1997:122) indicates that the approach "assumes that households that can satisfactorily meet their food needs also satisfy the minimum levels of all their other basic needs," an assumption not necessarily so. See also Alderman (1993:115–131).

[4] The figure for flesh foods is an average for a population that includes high Hindu castes who do not eat meat for religious reasons. For these castes, pulses combined with additional cereals make up the amino acids provided by meat. Rajalakshmi (1975:106–109) refers to a usual adult Indian diet. I am grateful for the help of the nutritionist Meredith Smith in preparing this material.

1985 indicate that 33 percent of the Indian population was below the $1/day poverty line (or potentially undernourished).[5]

Tying the initial $1/day poverty line to food makes it more tangible. “However, in both India [and other countries], the poverty line has been held constant in real terms, updated in nominal terms by a price index, and no attempt has been made to preserve the original link with food” (Deaton 2003). Moreover, India’s $1/day poverty may be less useful for other LDCs, even if you are careful in choosing the $PPP exchange rate.

Lant Pritchett (1997:8–9) indicates that

> the five lowest levels of caloric availability ever recorded in the FAO data for various countries – 1610 calories/person during a famine in Somalia in 1975; 1,550 calories/person during a famine in Ethiopia in 1985; 1,443 calories/person in Chad in 1984; 1,586 calories/person in China in 1961 [during the famines and disruption associated with the “Great Leap Forward”]; and 1,584 calories/person in Mozambique in 1987 – reveal that nearly all of the episodes of average daily caloric consumption below 1,600 are associated with nasty episodes of natural and/or man-made catastrophe. A second use of caloric requirements is to calculate the subsistence income as the cost of meeting caloric requirements. Bairoch (1993) reports the results of the physiological minimum food intake at $291 (at market exchange rates) in 1985 prices. These calculations based on subsistence intake of food again suggest P$250 is a safe lower bound.

The $2/day poverty line provides for consumption in excess of the bare physical minimum but varies from country to country, reflecting the cost of participating in the everyday life of society. The $2 line is more subjective than the $1 line, including indoor plumbing and potable water as a “necessity” in some countries but not in others. At this upper poverty line, 55 percent of the Indian population was below the poverty line in 1985 (Ravallion, Datt, and van de Walle 1991:354), just before a recent growth spurt.

The World Bank estimates that $1/day poverty (1985PPP) in 2000 was 17.6 for the world (21.6 percent for LDCs) and $2/day poverty 43.7 percent (53.6 percent for LDCs) (see Table 6-1, which estimates LDC poverty rates; rates for DCs are consistent with assumptions behind Figure 6-4).

Global and Regional Poverty

Table 6-2 estimates poverty in the developing world, 5.4 percent of the world (and 6.7 percent of LDCs) at $1/day and 15.1 percent of the world (and 18.6 percent of LDCs) at $2/day in 1998. Table 6-3 indicates that the lowest poverty rates are in formerly communist Eastern Europe (not including former Soviet Central Asia) even with the diminished social safety net since the transition to capitalism in 1989–91.

[5] In comparison, Sala-i-Martin (2002:38), discussed later, estimates India’s $1/day poverty rate at 17 percent in 1980 and 5 percent in 1990.

TABLE 6-1. Regional Poverty Rates in Developing Countries, 2000

	Poverty line (PPP $1.00/day)[a]		Poverty line (PPP $2.00/day)[a]	
	Number (millions)	Percent	Number (millions)	Percent
East Asia	261	14.5	873	48.3
China	204	16.1	599	47.3
Rest of East Asia	57	10.6	274	50.8
South Asia	432	31.9	1,052	77.7
India	352	34.7	810	79.9
Rest of South Asia	80	23.5	242	71.2
Sub-Saharan Africa	323	49.0	504	76.5
Middle East & North Africa	8	2.8	72	24.4
Latin America	56	10.8	136	26.3
Eastern Europe & Central Asia	20	4.2	101	21.3
Total	1,100	21.6	2,737	53.6

Notes:
East Asia includes Pacific Islands and Southeastern Asia.
Middle East and North Africa includes Cyprus, Iran, Israel, Malta, and Turkey.
Eastern Europe includes Russia.
Latin America includes the Caribbean.
[a] $PPP in 1985 prices.

Sources: World Bank 2004h:46; World Bank 2003f:59.

TABLE 6-2. How Much Poverty Is There in the Developing World? The Situation in 1998

Region	Population (millions)	$1/day Headcounts (millions)	Rates (percent)	$2/day Headcounts (millions)	Rates (percent)
Asia	3,084	52.1	1.7	480.3	15.6
China	1,239	32.4	3	231.8	19
India	980	6.4	1	140.5	14
Latin America	486	10.7	2.2	51.1	10.5
Brazil	166	1.73	1	21.41	12.9
Mexico	96	0.01	0	1.76	1.8
Africa	579	234.7	40.5	368.4	63.6
Nigeria	120.8	55.50	45.9	84.38	70
Ethiopia	61.3	37.43	61.1	50.25	82
South Africa	41.4	1.78	4.3	7.73	19
Tanzania	32.1	22.56	6.3	28.65	85
Kenya	29.3	10.25	35	18.47	63
All developing countries	5,240	352.9	6.7	973.7	18.6

Source: Sala-i-Martin 2002:34–42.

TABLE 6-3. Poverty Rates in the World, 1950–2000 (percentage)

	Poverty line (PPP $1.00/day)[a]						Poverty line (PPP $2.00/day)					
Region	**1950**	**1960**	**1970**	**1980**	**1990**	**2000**	**1950**	**1960**	**1970**	**1980**	**1990**	**2000**
East Asia	86.6	77.5	71.1	67.2	31.3	6.0	91.1	86.0	82.0	78.3	49.2	16.1
South Asia	44.3	37.2	32.1	34.4	18.5	7.8	64.3	58.1	55.2	56.3	39.3	21.1
Sub-Saharan Africa	59.3	53.2	52.2	49.9	55.3	54.8	70.2	65.4	63.4	62.3	67.1	66.8
Middle East & North Africa	26.3	24.3	13.4	4.3	5.2	7.8	40.3	37.2	23.3	10.4	10.2	14.0
Latin America	22.0	16.0	9.4	3.6	5.3	5.2	31.3	24.5	15.4	8.2	10.8	10.4
Eastern Europe	17.8	9.2	3.3	1.7	0	0	28.4	16.4	6.7	2.8	3.2	3.1
Developing world	63.2	52.8	46.4	43.5	25.4	13.1	73.8	65.2	59.9	56.3	40.4	23.3

Notes:
East Asia includes Pacific Islands and Southeastern Asia.
Middle East and North Africa includes Cyprus, Iran, Israel, Malta, and Turkey.
Eastern Europe includes Russia.
Calculations are based on national accounts means. In many cases, income distribution data may not be available for decade-end years. In such cases, the table presents either the closest earlier year for which data are available or, where earlier data are not available, data for the earliest later year. For example, if the latest survey took place in 1995, the 2000 figures reflect these values; if the first survey took place in 1975, the 1960 figures reflect those values.
[a] Bhalla 2002:148 uses a poverty line of $PPP1.50/day in 1993 prices, the same as $PPP1/day in 1985 prices (ibid., p. 140).

Source: Bhalla 2002:148, using Deininger and Squire 1996:259–287; WIDER 2002; Asian Development Bank 2002.

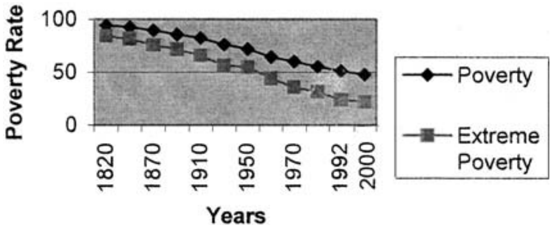


FIGURE 6-5. Percentage Rates of Poverty ($2/day in 1985 PPP) and Extreme Poverty ($1/day in 1985 PPP), 1820–2000. *Source:* Bourguignon and Morrisson 2002:731–732, with linear extrapolation for years between the points for 1820, 1850, 1870, 1890, 1910, 1929, 1950, 1960, 1970, 1980, 1992, and 2000. The figures for 2000 are based on the percentage reduction from Bhalla (2002:144) and the relationship between poverty and extreme poverty in Sala-i-Martin (2002:34).

Let's focus on Afro-Asia and Latin America. Latin America has the lowest poverty rates; extreme poverty has fallen over the last half of the 20th century but $2/day poverty has increased slightly. But Table 6-2 indicates Asia has a lower $1/day poverty rate than Latin America, but the same source, Xavier Sala-i-Martin (2002:37), indicates Latin America's upward trend in the $1/day poverty rate while $2/day poverty is unchanged since 1980.

The Middle East and North Africa, included in Table 6-3, has a lower $2/day poverty rate than either East or South Asia but higher $1/day poverty than East Asia and the same as South Asia. India, three-fourths of South Asia's population, has 1 percent $1/day and 14 percent $2/day in Table 6-2 and 13 percent $1/day and 26 percent (the Government of India estimate) $2/day in Bhalla (2002:125), a contrast to the World Bank's poverty figures for India of 35 percent for $1/day and 80 percent for $2/day in Table 6-1. China, with 93 percent of developing East Asia's population, has both poverty rates lower than India's with Table 6-1, Bhalla (source for Table 6-3), and (except for $1/day) Table 6-2.

Africa's poverty rate (Table 6-2) is higher than Asia's and Latin America's. Indeed, Africa (sub-Saharan Africa in Table 6-3) experienced virtually no rate reduction from 1950 to 2000. The combined poverty rates of the two major Asian regions did not fall lower than sub-Saharan Africa's until the 1980s or 1990s. The World Bank, by contrast, ranked South Asia's $2/day poverty rate higher than that of sub-Saharan Africa in both 1990 and 2000 (Table 6-1). (Below, after the section on the Lorenz curve and Gini index, we discuss the differences among the sources for the three tables.)

Concepts and Measures of Poverty: Amartya Sen's Approach

The Cambridge University economist–philosopher Amartya K. Sen contends that traditional welfare economics, which stresses the revealed preferences or desire-based utilities of individuals in their acts of choice, lacks enough information about people's

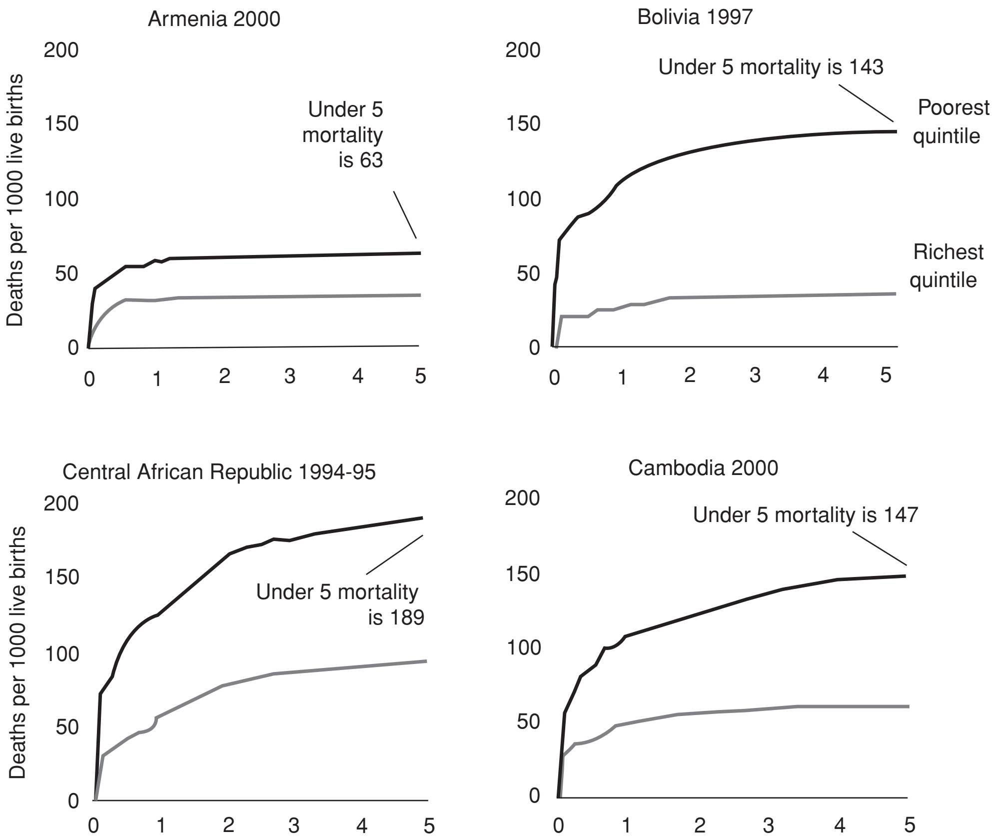


FIGURE 6-6. Child Mortality Is Substantially Higher in Poor Households. *Source:* World Bank 2004:20.

preferences to assess the social good. Accordingly, as an alternative, Sen's welfare theory relies not on individuals' attainments (for example, of basic needs) but individuals' **capabilities**, an approach he believes can draw on a richer information base. From a feasible capability set, Sen focuses on a small number of basic functionings central to well-being.[6] For Sen, living consists of the effective freedom of a person to achieve states of beings and doings, or a vector of functionings. He does not assign particular weights to these functionings, as well-being is a "broad and partly opaque concept," which is intrinsically ambiguous.

Sen focuses on a small number of basic functionings central to well-being, such as being adequately nourished, avoiding premature mortality, appearing in public without shame, being happy, and being free. This freedom to attain, rather than the functionings themselves, is the primary goal, meaning that capability does not correlate closely to attainment, such as income. One example is life expectancy, a proxy for health, which, at 77 years, is as high for Costa Rica as for the United States, which

[6] Lacerchi, Saith, and Stewart (2003:255) are diagramatically clear: From a capability set, each individual chooses functionings or achievements.

has an income per head nine times as high. Moreover, men in the Harlem district of New York City, despite the capability sets and choices available to the U.S. society, have less chance of living to 40 years than men in Bangladesh. This is not because Harlem has a lower GNP per capita than Bangladesh, Sen explains, but because of the high urban crime rate, inadequacy of medical attention, racism, and other factors that reduce Harlem's basic attainments.[7] Although people in Harlem have a greater command of resources than those in Bangladesh, the costs of social functionings, which include avoiding public shame and participating in the life of the community, are higher for Harlem residents (as well as U.S. residents generally, Sen argues) than for Bangladeshis (Sen 1973, 1981, 1987, 1992, 1999; Sugden 1993:1947–1462; McCord and Freeman 1990).

For Sen, poverty is not low well-being but the inability to pursue well-being because of the lack of economic means. This lack may not always result from a deficiency of capabilities. An extreme example will illustrate this even more clearly than that of the Harlem case. If Mr. Richman has a high income, but squanders it so that he lives miserably, it would be odd to call him "poor." Here poverty is the failure of basic capabilities to reach minimally acceptable levels (Sen 1992:102–116).

Sen argues against relying only on poverty percentage or **headcount approach** (H) to measure poverty and deprivation, the approach of World Bank economists, Ahluwalia, Carter, and Chenery (1979:299–341). As D. L. Blackwood and R. G. Lynch (1994:569) assert in their criticism of Ahluwalia et al.: "Poverty does not end abruptly once an additional dollar of income raises a family's (or individual's) income beyond a discretely defined poverty line. It is more accurate to conceive of poverty as a continuous function of varying gradation." In addition to (H), Sen contends, we need an **income-gap approach** (I), which measures the additional income needed to bring the poor up to the level of the poverty line. This gap can be expressed in per-capita terms, that is, as the average shortfall of income from the poverty line. Having measures of H, as well as I, should reduce the strong temptation government faces to concentrate on the *richest* among the poorest, thus merely minimizing the percentage of the population in poverty (minimizing H) rather than minimizing the average deprivation of the poor (I). For Sen, adding an empirical measure, I, should improve policy effectiveness.

The World Bank, which became convinced of the validity of Sen's critique of Bank-type analyses of poverty by 1990, defines the income or poverty gap as "the mean shortfall from the poverty line (counting the nonpoor as having zero shortfall), expressed as a percentage of the poverty line. This measure reflects the depth of poverty as well as its incidence." In 2000, Bangladesh's $1/day headcount poverty

[7] According to the U.S. Justice Department's Bureau of Justice Statistics, in the United States, African-American men aged 12 to 24 years were victims of homicide at a rate of 114.9 per 100,000 in 1992, compared to 11.7 per 100,000 for white men of the same age, and 8.5 per 100,000 for the general U.S. population (Kansas City Star 1994:A4).

Corrie (1994:53–55) discusses the Human Development Index (HDI) for the U.S. black child, including an HDI for all 50 U.S. states, based on poverty rates, low birthweight, incarceration rates, and unemployment rates for African Americans.

rate was 36.0 percent, while its $1/day poverty gap was 8.1 percent (World Bank 2003h:58–61). Although 36 percent of Bangladesh's population was extremely poor, a transfer of 8.1 percent of GNP would bring the income of every extremely poor person exactly up to the $1/day line. In China, although $1/day poverty was 16.1 percent, the cost of bringing the income of these poor to the $1/day line was only 3.7 percent (ibid., p. 58). For LDCs generally, 19-percent $1/day poverty (World Bank 2003f:30–31) could be reduced by a 1-percent transfer from LDC consumption *or* a one-half of one-percent transfer from world consumption. This assumes perfect nondistortionary targeting to the extreme poor without reducing mean consumption. Alas, we do not have perfect information to identify the poor nor do we know the effect of this transfer on the income of the nonpoor. Yet we have information on countries with extreme poverty and some detailed information on the regions, classes, and communities of the extreme poor.

A third empirical measure Sen recommends is the distribution of income among the poor, as measured by the Gini coefficient (G). Combining G, H, and I, which together represent the Sen measure for assessing the seriousness of absolute poverty, satisfies Sen's three axioms for a poverty index: (1) the focus axiom, which stipulates that the measure depend only on the incomes of the poor; (2) the monotonicity axiom, which requires that the poverty index increase when the incomes of the poor decrease; and (3) the weak transfer axiom, which requires that the poverty measure be sensitive to changes in the income distribution of the poor (so that a transfer of income from a lower-income poor household to a higher-income household increases the index).

The Lorenz Curve and Gini Index (G): Measures of the Distribution of Income

This discussion, however, is not limited to the income distribution of the poor but focuses on the Gini as a tool for measuring the overall income concentration among both nonpoor and poor.

Indices of income distribution measure relative poverty rather than absolute poverty. Income inequalities are often shown on a **Lorenz curve** (see Figure 6-7). If income distribution were perfectly equal, it would be represented by the 45-degree line (a). If one person, represented at the extreme right, received all the income, the Lorenz curve would follow half the perimeter of the box, the *x*-axis, and the right line parallel to the *y*-axis (e). In practice Lorenz curves are located between the 45-degree line and the line of complete inequality. Table 6-4, columns 2 and 3, shows the personal income distribution of two countries. Except for several sparsely populated LDCs, South Africa is the country that has the world's highest personal income inequality (World Bank 2003h:64–66). Among Afro-Asian and Latin American LDCs, Bangladesh has the lowest inequality.

Income concentration for some DCs, such as Japan, Sweden, Finland, and Belgium, and some transitional countries in East Central Europe or the former Soviet Union, are lower than that for Bangladesh; however, most DC measures of income inequality, which are for households rather than persons, are not comparable

TABLE 6-4. Personal Income Distribution for Bangladesh, South Africa, and the World

(1) Population quintile	(2) Bangladesh (2000) (percent)	(3) South Africa (1995) (percent)	(4) World (1993) (percent)
1	9.0	2.0	2.0
2	12.5	4.3	3.7
3	15.9	8.3	9.4
4	21.2	18.9	12.5
5	41.3	66.5	72.4
Total	99.9	100.0	100.0
Gini coefficient	0.29	0.57	0.60

Sources: World Bank 2003h:64–66; Milanovic 2002b:73.

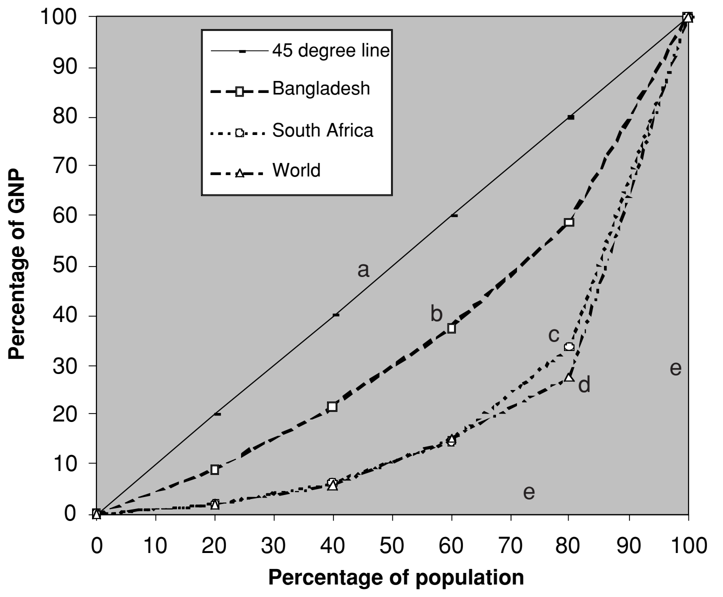


FIGURE 6-7. Lorenz Curves for Bangladesh, South Africa, and the World. The Lorenz curve indicates a higher income inequality for the world (curve *d*) than for South Africa, the country that has virtually the world's highest personal income inequality (curve *c*).[a] Curve *b* shows the income inequality for Bangladesh, the developing country with the world's lowest personal income inequality.[b] *Notes*: [a] Highest except for neighboring Botswana, Namibia, and Swaziland; and Central African Republic, Guatemala, Nicaragua, and Sierra Leone, with populations less than seven million. [b] Lowest outside East Central Europe and the former Soviet Union. *Sources:* World Bank 2003h:64–66; Milanovic 2002b:73.

to measures available for the majority of LDCs. Economists would prefer surveys of larger units, the household, to that of the individual, so that low-earning members of high-earning families are not classified as poor. Data on household income allow researchers to express poverty on a per-capita basis, at least if information is available for researchers to adjust income for household size. Still, one problem of household income data is the risk that researchers will ignore inequality *within* households (Fields 1994:89).

The data in Table 6-4 are arranged in ascending order from population quintile 1 (the 20 percent or one-fifth with the lowest income) to quintile 5 (the 20 percent with the highest income). These data are plotted on curves b and c in Figure 6-7.

At present, most measures of income distribution are for countries, or regions within a country, but there is a growing perception of the global economy as an international system. LDC populations who demand a new international economic order assume that the welfare of a jute farm laborer in Bangladesh, a foundry worker in Brazil, a textile manufacturer in Kenya, and a cabinet minister in India are linked to decisions made by bankers, industrialists, and economic policymakers in the United States, Western Europe, and Japan. Developing countries compare their living standards to those of developed nations. Accordingly, there is some validity to the concept of a world distribution of income.

Income inequality for the world exceeds that for any single country. The top 20 percent of the world's income-earning households receive 72.4 percent of the global income, and the bottom 40 percent receive only 5.7 percent. In South Africa, the top 20 percent of the households receive 66.5 percent of the income, and the bottom 40 percent, 6.3 percent. South Africa's curve c is to the left of the world's curve d in Figure 6-7.

When x and y are Lorenz curve coordinates (based on cumulative values, not the incremental values listed in Table 6-3), and Δx and Δy are corresponding increments passing through these coordinates, then the **Gini index of inequality**

$$G = 2/10{,}000 \sum (x - y)\Delta x \qquad (6\text{-}1)$$

Summations are taken as many times as there are Δx increments between the limits (Merritt and Rokkan 1966:364). The Gini index is the area between curve a and the Lorenz curve as a proportion of the entire area below curve a. It ranges from a value of zero, representing equality, to 1, representing maximum inequality. The 1993 Gini for the world, 0.66, exceeds that for South Africa, 0.59. The global income distribution is more unequal than that within any single country, as cross-national disparities in GNP per capita are added to those of internal inequalities.

The World Bank, Institute for International Economics, and Sala-i-Martin: Three Views of Poverty and Inequality

How do the three sources, Sala-i-Martin (Table 6-2), Bhalla (Table 6-3), and the World Bank (Table 6-1; Milanovic, Figure 6-7, curve d, and Table 6-4 and Ravallion, Datt, and van de Walle) come up with their various figures?

Sala-i-Martin (2002:7–8) starts from quintiles (fifths, from lowest to highest) for each country, assuming that the logs of a country's individual incomes are distributed normally, similar to a bell curve. He has data on the mean log-income and the **variance** (a measure of how spread out a distribution is). With these, he goes beyond the World Bank's use of quintile data (for example, India's lowest quintile had 8.1 percent of income shares, the second quintile 11.6 percent, the third 15.0 percent, the fourth 19.3 percent, the highest 46.1 percent) to interpolate distribution by percentiles, so that he has average incomes for each mean income of 100 1-percentile sets rather than five quintile sets. India, with 1 billion people in 2000, had 10 million in each percentile but 200 million in each quintile, indicating the quintile mean loses much information. His tests indicate that the size and density of each country/year's kernel and the actual percentile distribution, using this technique, closely approximate the true shape plotted from actual detailed data, where they are available. The **standard deviation** of log income and the size of the population indicate the bandwidth for each kernel. He then integrates individual country/year distributions and density functions to construct a worldwide income distribution.

Sala-i-Martin (2002) uses a standard source – two World Bank's economists, Deininger and Squire (1996) and upgrades – for estimates of quintile income shares for 68 countries in Group A between 1970 and 1998. Although most countries do not have observations for every year, missing years are approximated by linear extrapolation (that is, if 1972 is 20 and 1982 is 28, then 1977 is 24). For 29 countries, in Group B, for which Deininger and Squire have only one income distribution by quintiles for the period, Sala-i-Martin assumes constant income shares from 1970 to 1998. For 28 countries (about 4 percent of the sample population) for which there are no income distribution data, he assumes that all individuals within each country have the same income – the income per capita of that nation. Thus, his estimates encompass 125 countries with a combined population of 5.23 billion, 88 percent of the world's 5.9 billion people in 1998.

Milanovic (2000a:8) charges Sala-i-Martin with "the Ricardian vice: fragmentary and sparse data overcome by making heroic and unwarranted assumptions." Milanovic thinks that Sala-i-Martin has too few data points (on average 5–6 of 27 years for Groups A and B) and a lack of clarity about whether the source indicates consumption or income, or individual or household, distribution. Milanovic wants detailed household survey data from at least 90 percent of the world's income or expenditure and population, something his study does not attain (Milanovic 2000b:60).

Moreover, Sala-i-Martin fails to include the former Soviet Union (FSU), former Yugoslavia, and Bulgaria (about 6 percent of the world's population) in his sample. Including them might have invalidated his conclusion of falling income inequality, as the former communist countries' inequality increased substantially during the transition. Milanovic's study (2002) finds that the FSU increases the world's Gini index of inequality by 1.5 percentage points between 1988 and 1993, a change that

would have compensated for Sala-i-Martin's falling inequality during this period.[8] Milanovic's conclusion (2000a:18) about Sala-i-Martin's study is: "Never was so much calculated with so little." By contrast, the standard errors for Milanovic's Gini (2000b:72) are so high that they are consistent with no change or a reduction in inequality.

Milanovic (2002a:2) also contends that without China, Sala-i-Martin's late-20th-century individual income inequality is no longer falling, but increasing slightly, similar to Milanovic's (2000b) finding. Yes, but in doing so, we would exclude one-fifth (1.2 billion of the then 6 billion) of the world's population! And Milanovic (2000b:80–84) admits that if China's and India's incomes increase faster than the world's, inequality falls substantially.

Bhalla (2002) wrote the monograph *Imagine There's No Country* for the Institute for International Economics, an establishment think-tank in Washington, D.C. The work, named after a John Lennon song, tries to imagine the world's distribution of income among individuals, as if there were no national boundaries. Bhalla, like Sala-i-Martin, uses published data on quintiles and means, assumes log-normal distribution, interpolates to estimate missing values, and estimates a Lorenz curve that yields 100 percentiles rather than just 5 quintiles. Bhalla criticizes World Bank economists for basing consumption inequality estimates on an average taken from household surveys (whose consumption spending was substantially underestimated) rather than the higher average consumption based on national-accounts data. Indeed the ratio of the survey mean to national account mean is 53 percent for income and 74 percent for consumption, a decade-long falling ratio that understates the mean around which a variance is computed. Thus, surveys are continually capturing a lower fraction of national accounts consumption and income (ibid., p. 109).[9] Bhalla's (and Sala-i-Martin's) innovation is "breaking down of the population from quintiles to percentiles to better focus on individuals" (Hughes 2002–03:50).

The consumption or income means from surveys used by the World Bank for 1993 income inequality indicate that the average South Korean was richer than the average Swede or Briton (rather than 35 to 40 percent poorer, per national accounts), and the average Indian was 30 percent poorer than the average Ethiopian (rather than being three times richer, as national accounts imply). The World Bank (and Milanovic), by not adjusting survey means to be consistent with faster-growing national accounts means, underestimate mean consumption and overstate poverty, magnifying the errors in the poverty rate trend. To include missed-out consumption,

[8] The World Bank (2001h:3) estimates that from 1987 to 1998 $1/day poverty rose more than 20-fold in the formerly communist countries of East and Central Europe and Central Asia.

[9] The World Bank (2001h:26) agrees that "NSS [National Sample Survey] consumption is an increasingly smaller fraction of private consumption as estimated in the NAS [national accounts]. NSS consumption has declined relative to NAS consumption during the past three decades; the two were much closer in the 1950s and 1960s. . . . [P]overty would show a downward trend during the 1990s (as found by Bhalla 2000). . . . It is plausible that the NSS-based poverty numbers are underestimating the rate of poverty reduction in India."

Bhalla uses a multiplier, expenditures in national accounts/expenditures in the survey, to obtain average consumption expenditure, around which the variance is computed (ibid., 105–126).[10]

What measure should we use to measure the effect of growth on poverty? Ravallion, Datt, and van de Walle (1991:345–361; U.N. Development Program 2003:67) discuss the effect of growth on poverty by estimating that a 1-percent LDC per-capita consumption growth, with income inequality unchanging, would reduce the poverty percentage, H, by 2 percent yearly. They estimate that the **elasticity of the poverty gap with regard to the Gini index,**

$$\frac{(H_2 - H_1)/\text{average}\,H}{(G_2 - G_1)/\text{average}\,G} \tag{6-2}$$

8.4 (where 1 is the earlier time period and 2 is the later time period), is so high that the effect of a growth of 16 percent in mean consumption, 1985–2000, on poverty would be offset by a 4.3 percent increase in the Gini index.

Bhalla's (2002:168–169) global *individual* income distribution from 1980 to 2000 paints a different picture, showing that income inequality continually fell. Moreover, his historical statistics indicate that, viewed from the last two centuries, 1980–2000 was not a period when global poverty reduction stagnated, as the World Bank indicates, but was the golden age for poverty reduction. $1/day poverty (1985 $PPP) fell 23.8 percent from 1980 to 2000, yielding the highest, 9.8, percentage-point poverty reduction per 10 percent growth (ibid., pp 145–146).

He argues that a large number of countries can show worsening income inequality and yet the world show falling inequality (ibid., p. 181). The main reason is the shift from the world's lower class (less than $PPP10/day at 1993 prices) to the world's growing middle class ($PPP10–$PPP40/day), especially in China, India, and other Asian countries. (Figure 6-8 shows the changing composition of that middle class.)

For Bhalla, the important measure is the **elasticity of propoor growth**, the (percentage increase in the consumption growth of the poor)/(percentage increase in the consumption growth of the nonpoor). If the elasticity is greater than 1, then the process is propoor, if less than 1 antipoor. Bhalla points out that some regional elasticities (sub-Saharan Africa based on consumer surveys, South Asia, and the Middle East) are less than 1. LDCs as a whole have *elasticities close to 2 if you include China and India but no more than 1 if you exclude them*. For the world, both DCs and LDCs, this elasticity is more than 4, using national-accounts data, and even more than 2, using consumer survey data (Bhalla 2002:168–172). Consumption by the world's poor, driven largely by China and India, grew more rapidly than consumption by the rich, 1980–2000.

For Bhalla (2002:163), "The disillusionment with the processes of [1980 to 2000] growth was in large part an unintended outcome of . . . the measurement of poverty

[10] Martin Ravallion asks (2003:16): "If you don't believe the overall survey mean, how can you believe the distribution obtained from the survey?" Moreover, critics think Bhalla, similar to Sala-i-Martin, is unclear about whether his data sources indicate consumption or income, or individual or household, distribution.

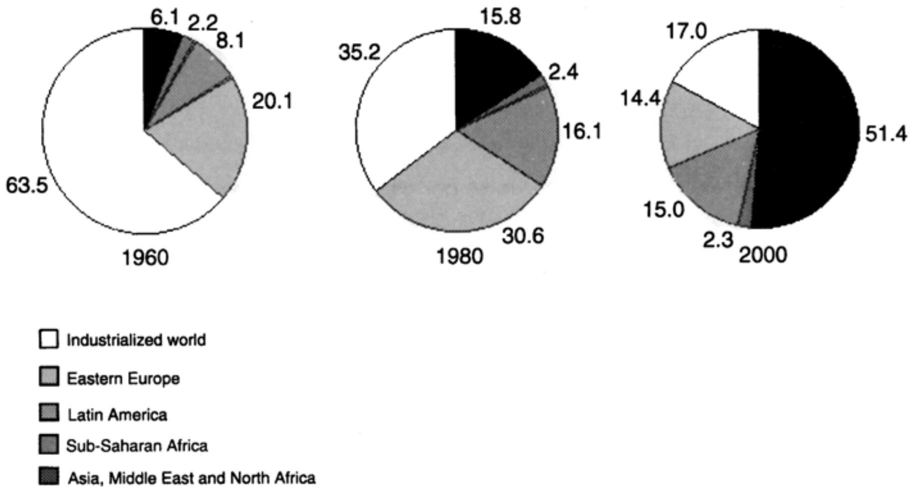


FIGURE 6-8. Share of Each Region in the World's Middle Class. Share of each region in the world's middle-class population (annual income between $3,650 and $14,600 PPP at 1993 prices). *Note:* To obtain regional distributions of income country data were pooled using the simple accounting procedure method, a method similar to that indicated earlier by Sala-I-Martin to obtain approximate shares for each percentile, even when only quintile data are available. *Source:* Bhalla 2002:188.

[by the World Bank]. The mixed-up observation [is] due to the mix-up of using Peter's poverty (from survey data) and Paul's income (from national accounts data)." Despite this valid point, Bhalla is attacking a "straw man," economists' "received wisdom" of stagnant global poverty reduction and growing world inequality and income divergence from 1980 to 2000. Moreover, Bhalla (2002:206) has too little evidence to indicate that "it definitionally follows [from his study] that growth has been more than sufficient to reduce poverty." The IMF economist Jeromin Zettelmeyer (2003:50) is right that the Bank is correct that "growth is good for the poor but that eradicating extreme poverty will require extra measures."

Zettelmeyer (2003:54) ably sums up economists' current knowledge on the subject:

> Per capita income and consumption growth in the past two decades has been close to zero in all regions of the developing world except Asia, which has grown very quickly. Because Asia housed more than three-fourths of the world's poor, the [world's] poverty rate has fallen substantially (by about 0.7 of a percentage point a year since 1990, according to conservative Bank estimates). For the same reason, world individual income distribution has probably improved. But the lack of regional growth outside Asia is disturbing, and even the most optimistic projections predict large and stagnating poverty levels in Africa in the foreseeable future.

Glenn Firebaugh (2003:22) agrees with Bhalla, in opposition to World Bank researchers, that globalization, "the world's spreading industrialization and growing economic integration in the late twentieth century and early twenty-first," has

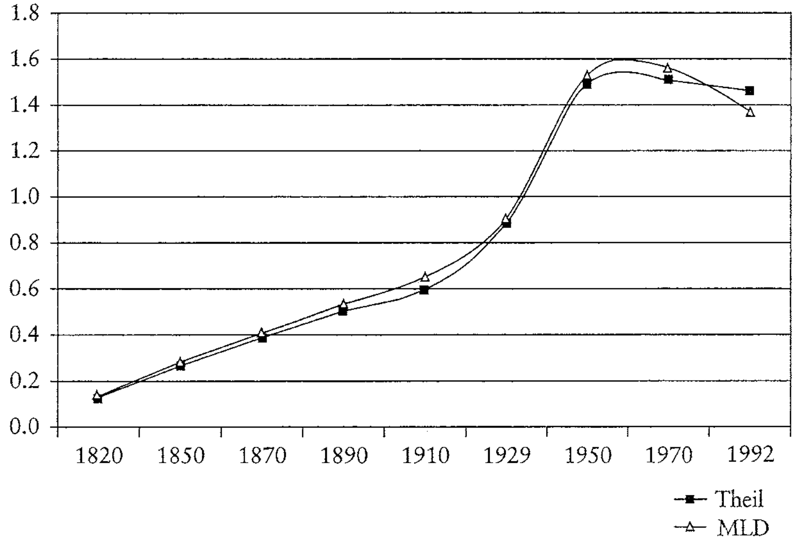


FIGURE 6-9. Ratio of Between-Nation to Within-Nation Income Inequality for 199 Nations, 1820–1992. Theil and MLD are measures of inequality. *Sources:* Glenn Firebaugh 2003. *The New Geography of Global Income Inequality*. Cambridge, Mass.: Harvard University Press, p. 25; and Francois Bourguignon and Christian Morrisson 2002. "Inequality among World Citizens: 1820–1992." *American Economic Review* 92(4) (September): 736.

reduced global income inequality, compressing inequality across nations and raising inequality within many nations. During the 19th century, the Industrial Revolution transformed the world from poverty as a norm in 1820 to a richer world with lower poverty rates but much greater inequality near the turn of the 20th century and through the mid-20th century (Figure 6-5; Firebaugh 2003:25). However, during the second half of the 20th century, inequality across nations slowed dramatically, so that the between-nation to within-nation inequality ratio stopped growing and eventually fell (Figure 6-9). During the 1990s, between-nation inequality began declining. Firebaugh expects within-nation inequality to rise or at least not decline, whereas between-nation inequality will fall with the continued modernization and industrialization of poor nations. However, "since between-nation inequality is the larger component, global income inequality will decline" (Firebaugh 2003:27). Findings by Ajit K. Ghose (2003:23–39), a senior economist in the Employment Strategy Department of the International Labor Office, are similar to those by Firebaugh.

Early and Late Stages of Development

The Nobel economist Simon Kuznets hypothesized (1955:1–28) that during industrialization, inequality follows an inverted U-shaped curve, first increasing and then decreasing with economic growth. Initially, growth results in lower income shares for the poor and higher income shares for the rich. Irma Adelman's and Cynthia

Taft Morris's explanation (1973) for the **Kuznets curve** presupposes that LDCs are characterized by a dual economy (Chapter 4) in which the modern sector's income and productivity are significantly higher than the traditional sector's. They indicate that when economic growth and migration from the traditional to the modern sector begin in a subsistence agrarian economy (production mostly for the use of the cultivator and his family) through the expansion of a narrow modern sector (primarily manufacturing, mining, and processing), income inequality typically increases. Income inequalities have especially worsened where foreign exploitation of natural resources triggered growth. Data indicate that the income shares of the poorest 60 percent and middle 20 percent decline significantly in such a context while the share of the top 5 percent increases strikingly – particularly in low-income countries with a sharply dualistic economy dominated by traditional or foreign elites.[11]

Once countries move beyond this early stage, further development generates neither particular increase nor decrease in shares for the top 5 percent. At the very highest income level of a developing country, broad-based social and economic advances usually operate to its relative disadvantage, at least if the government *enlarges* its role in the economic sphere. However, according to Adelman and Morris, the share of the top 5 percent increases if more natural resources become available for exploitation.

Middle-income groups are the primary beneficiaries of economic development beyond the early, dualistic stage. The first more widely based social and economic advances typically favor the middle sector.

As indicated earlier, the relative position of the poorest 60 percent typically worsens when growth begins. The modern sector competes with the traditional sector for markets and resources, and the result is a decline in the income *shares* of the poor. Such a decline occurred when peasants became landless workers during the European land consolidation of the 16th through the 19th centuries and when high-yielding varieties of grains were first used on commercial farms in India and Pakistan. Even when economic growth becomes more broadly based, the poorest segments of the population increase their income shares only when the government expands its role, widening opportunities for education and training for lower-income groups (Adelman and Morris 1973:178–183; Adelman and Morris 1978:245–273; Table 6-5).

Do country data over time provide evidence that inequality follows an inverted U-shaped curve as economic development takes place? Time-series data for individual countries are scarce and unreliable, and many LDCs have not yet arrived at a late enough stage of development to test the declining portion of the upside-down U curve. However, the time-series data available suggest the plausibility of the inverted U-shaped curve for DCs. Income concentration in Britain, Germany, Belgium, the Netherlands, and Denmark increased from preindustrialization to early

[11] Adelman and Morris (1973) contend that income, not just income shares, falls in early stages of growth, but their evidence does not support this.

TABLE 6-5. Income Shares at Stages of Development

Stages of Development	Income Categories: Low 60%	Middle 20%	High 5%
Early	Decline	Decline	Increase
Middle	Decline (unless state intervenes)	Increase	No change
Late	Increase	Increase	Decline

Based on Adelman and Morris (1973).

industrialization and decreased from early to late industrialization. Indeed, in late-19th-century Europe, inequality was very high and was highest in Britain, where the top 10 percent received 50 percent of the income and the bottom 20 percent 4 percent. This distribution is close to that of Brazil and Panama today, where the top 10 percent receive 40–60 percent and the bottom 20 percent no more than 2 percent. Second, the most reliable data for today's LDCs suggest that since 1970, inequality rose in low-income and lower-middle-income Bangladesh, the Philippines, Colombia, and Thailand and fell in high-income Taiwan, supporting the inverted U, but declined in low-income Pakistan, and middle-income Peru and Costa Rica and increased in upper-middle-income Argentina, Brazil, and Mexico, exceptions to the inverted U (Williamson 1991:10–13; World Bank 1993b:296–297; Sundrum 1992:117–121; Kuznets 1963b: 58–67; Lecaillon, Paukert, Morrisson, and Germidis 1984:42–43; Morris and Adelman 1988; Fields 1980:78–98). Thus, whereas the historical growth of early industrializing Europe followed an inverted U, the evidence for today's LDCs is too mixed and inconclusive to confirm the Kuznets curve.

Low-, Middle-, and High-Income Countries

Evidence for the Kuznets curve is stronger when we classify a group of countries *in a given time period* by per capita income levels. The relationship between inequality (as measured by the Gini index) and gross domestic product per capita is an inverted U skewed to the right. Figure 6-10, based on World Bank (2003h:14–16, 64–66) estimates of income distribution in 80 countries (except transitional economies) during the late 1990s, exemplifies the upside-down U relationship. Ahluwalia and his collaborators rank income inequality as high if the income share of the poorest 40 percent is less than 12 percent of GNP; moderate if it is between 12 and 17 percent; and low if 17 percent and above (Ahluwalia, Carter, and Chenery 1979:299–341; Ahluwalia 1974:1–22). Among the 80, 30 percent of low-income countries, 52 percent of middle-income countries, and 0 percent of high-income countries have high income inequality. By contrast, 37 percent of low-income countries,

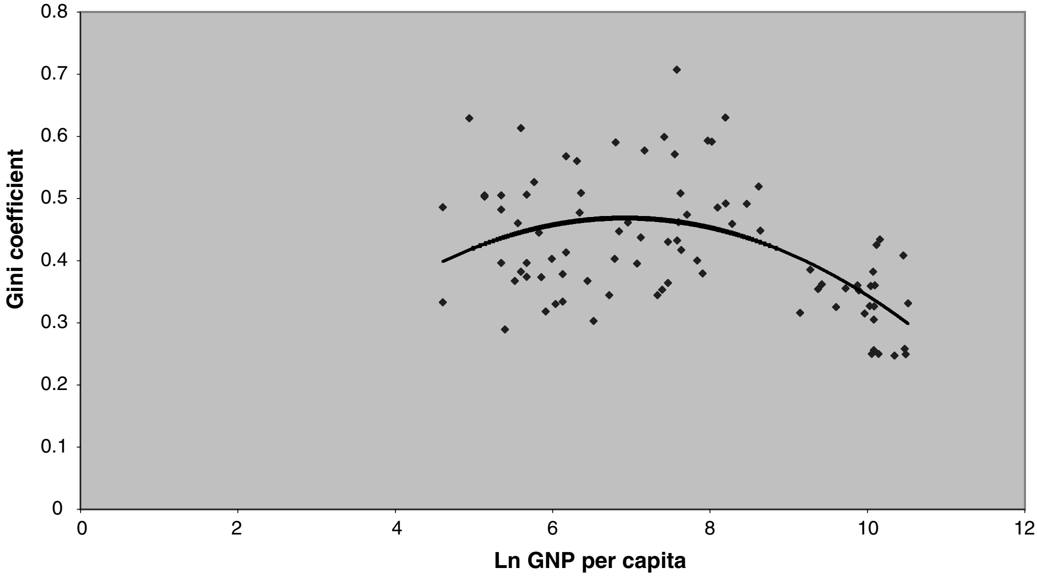


FIGURE 6-10. Income Inequality and Per-Capita Income. GNI (Gross National Income) per capita is for 2003 and Gini coefficient for latest available data (World Bank 2003h, CD-ROM version), with survey year ranging from 1993 to 2001. Gini $= 61.225(7.69) - 811.08$/GNI per capita $(-1.07) - 2.650$ ln GNI per capita (-2.95), with coefficient for ln GNI per capita significant at the 1 percent level (t-statistics are in parentheses).

17 percent of middle-income countries, and 84 percent of high-income countries have low inequality. Accordingly, income inequality increases as we move from low-to middle-income countries and declines from middle- to high-income countries, confirming the inverted U. The cross-sectional and DC time-series data but *not* the LDC time-series data support the hypothesis that inequality follows an inverted U-shaped curve as per-capita income increases.

The variance around the estimated curve is greater from low to middle levels of development. Indeed, if we exclude Latin America, the proportion of middle-income countries with high inequality falls from 52 percent to 14 percent, a figure less than that for low-income countries' high concentration, now 25 percent. Could the inverted U at a given time be a historical artifact, reflecting the fact that Latin America countries, who comprise a majority of middle-income countries, tend to have high income concentration?[12] The economic historian Jeffrey G. Williamson (1991:8) argues that cross-sectional data are not likely to show that inequality rises

[12] Oshima (1994:237–255) shows a Kuznets curve for Asia with similar pattern to, but below, that of the West. Oshima also argues that electronic technologies of automation, computers, and robots, by making middle managers, wholesalers, intermediaries, supervisors, clerks, secretaries, typists, and some manual workers redundant while improving the problem-solving capacity of workers on the factory floor, increased inequality in the United States, adding an upward tail to the inverted U. However, Japan's Ginis have not increased, perhaps reflecting substantially different employment and retraining policies by firms.

systematically; correlations between income inequality and early modern economic growth "are bound to be poor since history has given less developed countries very different starting points." Indeed, there is much more variation in relative inequality *within* country income groups than *between* them. (We discuss factors other than income later.) Income level is an imprecise predictor of a country's income inequality (Fields 1980:67; Fields 2001).

INCOME INEQUALITY IN DEVELOPED AND DEVELOPING COUNTRIES

The overwhelming majority of developed (high-income) countries have low income inequality (and none have high income inequality), whereas only 27 percent of the developing countries have low inequality (and 41 percent high inequality). The income shares of the poor are higher and their variance lower in DCs than in LDCs. Whereas the conclusion that the poorest 40 percent in high-income countries receive 18 percent compared to 13 percent for low-income countries is not distorted, the indication that poor in middle-income countries receive 12 percent overstates their equality. First, in LDCs personal and household income concentrations are approximately the same, whereas in DCs concentrations for persons is less than for households, as household size increases rapidly from lower- to upper-income classes. Suppose that DCs, whose income distribution is ranked by households, would have followed the approach of the LDCs in having their income distribution data ranked by persons. Then DC distribution data would have been even more egalitarian vis-à-vis LDC data than what appears in Figure 6-10. Second, in DCs, inequalities measured over a lifetime are markedly lower than those measured over a year, whereas in LDCs inequalities do not vary with the period chosen. Third, LDC life expectancies are highly correlated with average incomes, frequently contributing to interethnic, metropolitan–rural, and skilled–unskilled working life disparities of 10 to 15 years; in DCs these disparities are usually not so great. (In the United States, where these disparities are greater than for DCs generally, a 78-year life expectancy for white Americans compares to an African-American life expectancy of 72 years.) Fourth, progressive income taxes (with higher tax *rates* for higher incomes) and social welfare programs make income more equal in developed countries than nominal figures indicate. Fifth, however, LDC (especially in a low-income country) urban–rural income discrepancies are overstated, because rural in-kind incomes are undervalued and rural living costs are usually 10–20 percent lower than urban costs. Sixth, retained corporate profits, which accrue disproportionately to upper-income classes, and are a significant fraction of GNP in DCs and many middle-income countries but usually omitted in income distribution estimates, contribute to overstating equality in high-income countries. Thus, overall, the first four distortions are probably balanced by the fifth and sixth distortions, so that the comparison DCs' and low-income countries' income distributions is unchanged. However, middle-income countries are affected so little by distortions 5 and 6 that these are outweighed by the first four distortions, which increase the disparity in income concentrations between DCs and middle-income countries (Lecaillon, Paukert, Morrisson, and Germidis 1984:34–52; Kuznets 1976:1–44; U.N. Development Program 1993:18, 26; UN Development

Program 1994:98).[13] These distortions make the inverted U even more pronounced than data suggest.

Slow and Fast Growers

As already indicated, countries at earlier and lower levels of development are more likely to experience increases in income inequality. However, higher rates of economic growth, which are only weakly correlated with GNP per capita, are not associated with either greater equality or inequality. Both fast growers, such as Malaysia, Mexico, Chile, Brazil, and Botswana, and slow growers, such as Kenya, Nigeria, Cameroon, Honduras, Nicaragua, Guatemala, Panama, and Peru, have high income inequalities. And slow-growing Uganda, Ghana, Côte d'Ivoire, Rwanda, Burundi, Cuba, and Hungary and fast-growing Taiwan, South Korea, India, Pakistan, Sri Lanka, Indonesia, Israel, Greece, Portugal, and Poland have low income inequalities.

To be sure, Alberto Alesina and Dani Rodrik find that income inequality is negatively correlated with subsequent economic growth among DCs. But when less reliable data from LDCs are included, the coefficient is no longer statistically significant at the 5-percent level. Moreover, the lack of significance holds true for both democracies and nondemocracies (Alesina and Rodrik 1994:465–490).

Women, Poverty, Inequality, and Male Dominance

The major victim of poverty is the female, especially the single head of household responsible for child care but lacking support from males, the state, or informal networks. Narayan et al. (2000:15–28), *Voices of the Poor*, based on 81 detailed reports from interviews of the poor in 50 LDCs, examines how changing roles of men and women require shifts in internalized norms about and behavior toward women. Male alcoholism and domestic violence get their share of the blame, but the authors also attribute male reaction to the stress from the loss of traditional livelihoods and the unraveling of social safety nets.

Development economics assumes that government policies should be directed to resource allocation among households or families. Partha Dasgupta, however, stresses the allocation of food, education, health care, and work between men and women, young and old, boys and girls, and lower- and higher-birth-order children. Most data are biased, Dasgupta contends, because they fail to show this major source of interpersonal inequality. In many parts of the world, income inequality would be 30–40 percent higher if intrahousehold distribution were included. Gender ideologies commonly support the notion that men have the right to personal spending money (sometimes even when overall income is inadequate), while women's income is for

[13] The last two sources give figures on black–white disparities in the United States. In 1992, GDP per capita, in purchasing-power-adjusted dollars, was $22,000 for whites and $17,100 for blacks, while infant mortality rates for whites was 8 per 1,000 and for blacks 19.

collective purposes. According to Dasgupta, the higher infant mortality and other age-specific death rates for females relative to males in India, China, and the Middle East indicate a substantial antifemale bias in nutrition and health care (Dasgupta 1993:17, 311; Sen 1992:122–125; Dwyer and Bruce 1988:1–11). Indeed, M. R. Rosenzweig and T. P. Schultz (1982:803–815) argue that the lower rates of returns to female relative to male labor explain the low survival rates among girls.

In most precolonial Afro-Asian societies, patriarchal authority severely limited the power of women, who were protected if they were deferential to the patriarchs. Yet some societies gave women clearly defined economic roles, allowing wealth accumulation and limited economic authority.

Most Afro-Asian women lost their limited power under colonialism. Men received land titles, extension assistance, technical training, and education. When men left farms to seek employment, as in South Africa, women remained burdened with responsibility for the family's food. A few women, especially West African market traders, became wealthy, but the majority worked long hours to survive. In the 1930s through 1950s, colonial authorities colluded with patriarchal indigenous leaders to increase control over women. In some instances, where they had an independent economic base, women used traditional female organizations and methods, not confrontation to male authority, to oppose both European and local authorities. Women played a prominent role in many of the early nationalist struggles, especially when colonialists threatened their economic interests.

After independence low female literacy (two-thirds that for men, now nine-tenths of men's in LDCs), limited economic opportunity, and domestic burdens relegated women to the lowest economic rungs, even in countries claiming to be socialist, such as Ethiopia, which allocated land to male family heads during land reform in the 1970s. Government agricultural policy favored male heads of households and development plans often ignored women. Moreover, male migration to urban areas or to neighboring countries (as in Yemen, the Sudan, and Botswana) places women at a further disadvantage. Nevertheless, economic or political crises sometimes benefit women, as men seek new alliances between sexes in rebuilding weak economies and polities.

The ILO estimated that women comprised 513 million, or 34 percent of the LDC labor force of 1,510 million, and 766 million, or 36 percent, of the global labor force of 2,129 million in 1990. Although this proportion remained roughly constant from 1950 through 1980, women have increased their share slightly since then. Females receive an average income half that of males in LDCs (three-fourths in Latin America), partly from **crowding,** the tendency to discriminate against women (and minorities) in well-paying jobs, forcing them to increase the supply of labor for menial or low-paying jobs. Although women are frequently the backbone of the rural economy, in a modernizing economy, they enjoy few advantages. Although men seek wage employment in cities, women play the dominant role in small-scale farming, often on smaller plots and with lower returns than male-headed households. Women's work-loads are heavy as a result of childbearing (four children in the average rural LDC

family), carrying water (two hours spent daily by many African women), collecting wood, increased weeding from new crop varieties, and other farm tasks caused by growing rural population pressures. Additionally, when technological innovations increase the productivity of cash crops, men frequently divert hectares from women's food crops. Moreover, women as a rule receive lower returns to training and education (university rates of return are negative for Kenyan women) because of discrimination, withdrawal from the labor force, and having to live in the same place as their husbands. Moreover, in Accra, Ghana female workers shoulder most of the responsibility for cooking, cleaning, laundry, and other housework, although two-thirds of the male workers do not do any housework, a pattern similar to that in many other cultures, such as the United States and Western Europe (World Bank 2003h:45; Parpart 1986:278–292; U.N. Department of International Economic and Social Affairs 1986:12, 70; Lecaillon, Paukert, Morrisson, and Germidis 1984:80–81; Bloom and Brender 1993:8–9; House and Killick 1983:31–69; Bigsten 1984:134–147; Date-Bah 1989:59–65; Nafziger 1988:45–46, 124–126; Jazairy, Alamgir, and Panuccio 1992:78–84; Terrell 1992:387–404).

One striking demographic feature of the contemporary world that reflects the unequal treatment of women is the enormous geographic variation in the ratio of females to males. Medical evidence indicates that, given similar care, women have lower death rates than men. Thus, in North America and Europe, although men outnumber women at birth, women have lower mortality rates, outnumbering men by 105 to 100.

In many LDCs, however, the ratio of females to males is lower: 1.02 in sub-Saharan Africa, 0.98 in North Africa, 0.94 in China, Bangladesh, and the Middle East, 0.91 in Pakistan, and 0.93 in India, but 1.04 in Kerala state, known for its progressive policies toward females (Chapter 2). Amartya Sen uses sub-Saharan Africa as a benchmark to estimate **"missing" women** in female-deficit LDCs. He estimates 44 million missing females in China and 37 million in India.

The missing women reflect the antifemale biases in these cultures. In China, where the state irregularly enforces a "one couple, one child" policy, expectant couples may use sonograms to identify the gender of the fetus, sometimes aborting female children. Also a small fraction of Indian and Chinese couples practice female infanticide. Additionally, Amartya Sen found that in Mumbai, India, women had to be more seriously ill than men to be taken to a hospital. India, China, and some other LDCs with low female-to-male ratios have a bias in nutrition and health care that favors males. Discrimination against women in schools, jobs, and other economic opportunities lies behind the bias against the care of females within the family (Sen 1993:40–47).

The findings about intrafamily distribution suggest the error of merely directing resources to the household as a unit or to the nominal household head. Policy makers interested in inequality cannot stand clear of the issue of internal distribution within a household but may need to examine policies to see whether they discriminate against women or children (Dwyer and Bruce 1988:3).

Accompaniments of Absolute Poverty

The 400 to 1,100 million people living in absolute poverty (no more than $1/day in 1988PPP) suffer the following deprivations:

1. Three- to four-fifths of their income is spent on food; the diet is monotonous, limited to cereals, yams, or cassavas, a few vegetables, and in some regions, a little fish or meat.
2. About 50 percent are undernourished and hundreds of millions are severely malnourished. Energy and motivation are reduced; performance in school and at work is undermined; resistance to illness is low; and the physical and mental development of children is often impaired.
3. One of every ten children born dies within the first year; another dies before the age of 10; and only five reach the age of 45.
4. Beginning in 1975, the World Health Organization (WHO) and UNICEF expanded immunization against the major diseases of the developing world. Immunization rates increased rapidly, and deaths from these diseases fell substantially in LDCs from the 1980s to the 1990s. Still fewer than 60 percent of the children in absolute poverty are vaccinated against measles, diphtheria, and whooping cough, which have been virtually eliminated in rich countries. These diseases are still frequently fatal in developing countries. A case of measles is 35 times more likely to kill a child in a low-income country than in the United States.
5. Two-thirds of the poor lack access to safe and plentiful water and even a larger proportion lack an adequate system for disposing of their feces. Lack of sanitation, a problem of virtually all the poor, contributes to 900 million diarrheal diseases yearly. These diseases cause the death of three million children annually, most preventable with adequate sanitation and clean water.
6. Average life expectancy is about 45 years, compared to 78 years in developed countries.
7. Only about one-third to two-fifths of the adults are literate.
8. Only about 4 of every 10 children complete more than four years of primary school.
9. The poor are more likely to be concentrated in environmentally marginal and vulnerable areas, face higher rates of unemployment and underemployment, and have higher fertility rates than those who are not poor (World Bank 2003h; Mehrotra, Vandemoortele, and Delamonica 2000; World Bank 1993b; World Bank 1992i:5; World Bank 1990i; World Bank 1980i:33; U.N. Development Program 2003; U.N. Development Program 1993; UNICEF 1994).[14]

   You should remember that as we analyze the problems of LDCs in subsequent chapters, the problems of the LDCs' poor are even more severe than those of LDCs generally.

[14] UNICEF (1995:24–27) indicates the progress in reducing diarrhea through oral rehydration therapy and lessons for the mothers of infants.

Identifying Poverty Groups

1. Four-sevenths of the world's absolute poor ($1/day poverty) live in sub-Saharan Africa. Nigeria, Democratic Republic of Congo, Ethiopia, Tanzania, and Kenya and comprise three-fourths of the sub-Sahara's poor. More than one-sixth live in East Asia (mainly China) and one-sixth in South Asia (primarily India, Bangladesh, Nepal, and Pakistan). The remaining fraction is divided between the Middle East and Latin America (Bhalla 2002:148 for regional, Sala-i-Martin 2002:38–41 for national figures). By 2015, three-fourths of $2/day poverty is expected to be in the sub-Sahara (Bhalla 2002:170).
2. Some indigenous and minority groups are overrepresented among the poor; these include the Indians in Latin America and Dalits (outcastes) in India. An indigenous woman in Asociacin de 10 Agosto, Ecuador remarked:

   > Because we had not schooling we are almost illiterate. Sometimes we cannot even speak Spanish; we can't add. Store-owners cheat us, because we don't know how to count or anything else. They buy at the prices they want and pay less. They cheat us because we are not educated. (World Bank 2001h: 123)

3. Four-fifths of the poor live in rural areas, most of the rest in urban slums – but almost all in crowded conditions. The rural poor are the landless workers, sharecroppers, tenants, and small landowners. The urban poor include the unemployed, irregularly employed, menial workers, some small shopkeepers, artisans, and traders.
4. Compared to the lowest income classes in DCs, a much smaller percentage of the poor in the LDCs are wage laborers, or unemployed and searching for work (see later, on policies). Most of the poor work long hours as farmers, vendors, artisans, or hired workers. A few self-employed may own a small piece of land, some animals, or some tools, but many of the poor own no land and have virtually no assets.
5. Most of the poor are illiterate: They have not completed more than a year or two of school. As a result, their knowledge and understanding of the world are severely circumscribed.
6. Women are poorer than men, especially in one-quarter of the world's households where women alone head households. Under the weight of poverty, men who "fail" to earn adequate income often have difficulty accepting women as the main breadwinners with the concomitant redistribution of family power. In many instances, men retreat into alcoholism, domestic violence, and other antisocial behavior, contributing to the breakdown of the family. The fact that female-headed households are often desperately poor results not only from this poverty-induced breakdown but also the discrimination against women in the labor market (Narayan et al. 2000:6). The female labor force is small, employed in the lowest paid jobs, and characterized by a far greater unemployment rate than the male labor force. Moreover, in households with an adult male, females

are often given more menial work and males are favored in the distribution of food and other consumer goods (see Chapter 7).

7. Forty percent of the poor are children under 10, living mainly in large families. For example, in Pakistan in 1990, the poorest 10 percent of households averaged 7.7 members, of whom 3.6 were children under 10. The corresponding national averages were 6.1 and 2.2.
8. Even when living with an extended family, the elderly are poorer than other groups (Tinker, Bramsen, and Buvinic 1976; World Bank 1980i:33–35; Hendry 1988:8; World Bank 1990i; U.N. Development Program 1993; Pinstrup-Anderson 1994:1).
9. Many of the poor live in remote regions, beyond the gaze of the casual visitor to a village – away from roads, markets, and services or living on the outskirts of the village, thus lacking sufficient weight to influence political decisions (Jazairy, Alamgir, and Panuccio 1992:29).[15] Indeed, Alan G. Hill (1978:1) contends that the wretched Sahel Africans presented dramatically on Western television screens represented the normal misery for poor populations in remote rural areas, discovered only when "the destitute collect on roadsides, in refugee camps or on the outskirts of towns and cities."

Case Studies of Countries

INDONESIA AND NIGERIA

The contrast between the success of two populous oil-exporting countries, Indonesia and Nigeria, in reducing poverty rates, is instructive. Nigeria, independent in 1960, was under parliamentary government from 1956 to 1966, and under military government from 1966 to 1999 (except for an interim elected government, 1979–83). Indonesia, independent in 1950, was led by President Sukarno then to 1965, when he was overthrown by Major General Suharto, who was authoritarian president through his downfall in 1998.

The differences are a result of dissimilar economic growth and income distribution records ensuing largely from disparate polices. In 1973, Indonesia's GDP per capita was $PPP1504 compared to Nigeria's $PPP1442 (1990 PPP). By 1990, Indonesia's GDP per capita, $PPP2516, was double Nigeria's $PPP1242, and by 1998 triple, $PPP3070 to $1232 (1990 PPP) (Maddison 2001:215, 224). From 1973 to 1998, Indonesia's per-capita annual growth was 2.90 percent compared to Nigeria's −0.63 percent (inside front cover table), indicative of a fall from 1965 to 2004 in average economic welfare (including nutritional standards), the marginalization of middle-level professionals, and widespread corruption and unaccountable rakeoffs by military and political rulers, civil servants, and their clients. Despite the

[15] The World Bank (2001b:27) indicates that "poverty tends to be associated with distance from cities and the coast, as in China, Vietnam, and Latin America." Many of China's poor live in mountainous regions. "In Peru two-thirds of rural household in the poorest quintile are in the mountain region, while fewer than a tenth are in the coastal region." In Thailand, the 1992 poverty rate in the rural northeast "was almost twice the national average."

authoritarianism of Suharto, and his fall from power from a financial crisis, student and worker discontent, and secessionist conflict, Indonesia's economic development was more even by class, community, region, and urban–rural area. Indonesia pursued a strategy of labor-intensive industrialization and investment in secondary and post-secondary education (gross enrollment rates of 51 in secondary and 10 percent in tertiary education compared to rates of 34 and 4 percent, respectively, in Nigeria). Personal income concentration in Indonesia fell from a Gini of 0.46 in 1971 to 0.41 in 1976 to 0.30 in 1990 and 2000. Although Nigeria lacks income distribution data during the earlier period, information on the ratio of Nigerian industrial to agricultural labor productivity indicate an increase from 2.5:1 in 1966 to 2.7:1 in 1970 to 7.2:1 in 1975, after a fourfold increase in petroleum prices during four months in 1972–73; the ratio probably fell in the 1980s. In the late 1990s, Nigeria's Gini, 0.56, ranked the 15th highest of 113 countries in the world (Jain 1975:55; World Bank 1982i:158; World Bank 1993b:296; Diejomaoh and Anusionwu 1981: 373–420; World Bank 2003h:64–66).

Indonesia reduced its $1/day poverty incidence from 59 percent in 1975 to 7 percent in 2000, whereas Nigeria's incidence soared from 35 percent in 1975 to 70 percent in 1997. Indonesia even recovered from its 1997–98 financial crisis with a minimal increase in poverty (measured using a national line): poverty increased from 11.3 percent in 1996 to 18.9 percent in 1998 but declined in 1999 to 11.7 percent. A major contributor to reduced rural poverty in Indonesia was the dramatic increase in rice yields. For example, in Balearjo, East Java, from 1953 to 1985, rice yields increased from 2 to 6 tonnes of paddy per hectare for the wet season crop, whereas the daily wage rose from 2 to 4 kilograms of rice. By contrast, despite the oil boom, Nigeria's nutritional levels barely increased from the mid-1960s to the late 1970s, with the poorest 30–40 percent of rural households and many in the new urban slums being seriously undernourished and impoverished. Average calorie intake in Nigeria, especially in the otherwise more prosperous south where diets relied heavily on roots and tubers, did not improve between 1952 and 1985. Indeed, average consumption levels in 1985 were lower than in the 1950s (World Bank 1994i:42; World Bank 2001h:163; World Bank 2003h:58–60; Sala-i-Martin 2002:41–42).

Before 1973, both countries had more than 40 percent of GNP originating in agriculture. Both countries experienced an oil boom during 1973–75 and 1979–81. Whereas Indonesia's agricultural output increased 3.7 percent yearly from 1973 to 1983, output in Nigeria declined 1.9 percent and agricultural exports declined 7.9 percent yearly over the same period. From 1983 to 1992, Indonesia's agricultural output rose 2.8 percent and farm exports 6.2 percent annually; Nigeria's agricultural production grew 4.1 percent and farm exports fell 2.9 percent annually over the same period. Furthermore, agricultural imports as a share of total imports rose from 3 percent in the late 1960s to 17 percent in the 1980s and the 1990s in Nigeria, whereas in Indonesia the share increased only from 1 percent to 4–5 percent over the same period. The fact that Nigeria's agricultural value-added, 30 percent of GDP in 2001, is larger than Indonesia's 16 percent reflects on Nigeria's farm weakness, the slow growth in productivity.

Several differences in agricultural pricing and investment explain Indonesia's more favorable agricultural development. The real value of the Nigerian naira appreciated substantially in the early 1970s and early 1980s, depreciating relative to the dollar only under pressure in 1986, whereas Indonesia's rupiah's real value increased more slowly, and depreciated vis-à-vis the dollar starting from 1978 to 1983. Additionally, Indonesia invested a substantial amount of government funds in agriculture, including a General Rural Credit Program that loaned to rural people at commercial rates, whereas less than 10 percent of the Nigerian plan's capital expenditures were in agriculture. The attempt by Nigeria, beginning in the mid-1980s, to increase incentives and investment in agriculture had little impact (World Bank 1986a:72; Nafziger 1993:52–53). While the Food and Agriculture Organization (2003:37–38) indicates rapid growth of food-crop agriculture in the late 1990s and early years of the 21st century, Nigeria will still require sustained policy changes to reverse the effects of years of agricultural neglect.

Suharto and his advisors transformed Indonesia from hyperinflation, pervasive hunger, and unsustainable foreign debt in 1965 to subsequent infrastructure expansion and the development of staple foods, spurring a Green Revolution in rice. During the first two decades after 1966, Indonesia emphasized monetary stabilization and fiscal constraint, opened the capital account, and learned to avoid an overvalued rupiah. However, in the early 1970s, Indonesia's national oil company, Pertamina, turned the promise of oil wealth into overextension and massive resource misallocation but eventually was rescued by economists who ensured investment in agriculture and universal primary education. Beginning in 1983, in the face of oil's falling share in national income, Indonesia's deregulation, privatization, banking and legal reforms, infrastructure development, low protectionism, outward orientation, and equilibrium exchange rates helped sustain rapid economic growth (Prawiro 1998).

In 1986–90, the **terms of trade** (price index of exports divided by the price index of imports) of Nigeria, with petroleum comprising more than 90 percent of its exports, fell to 35 to 45 percent of its 1980 oil-driven peak, spurring a four-year slump comparable to the West's Great Depression of the 1930s; by 2001, these terms only recovered to 55 percent. The more diversified Indonesia economy, with some 35–55 of exports manufactures or nonoil primary products, continued to grow throughout the late 1980s and early 1990s, gradually reducing poverty rates (Ahluwalia, Carter, and Chenery 1979:299–341; World Bank 1990i:40–43; International Labor Organization, Jobs and Skills Program for Africa 1981; Matlon 1981:323–372; Nafziger 1988:10; Nafziger 1993:27–28, 67–69; Nafziger 1991:155–202; World Bank 1993b:237–238, 369–370; U.N. Development Program 2003:289; and Table 7-4). Although many of Nigeria's insecure military or civilian political elites (turning over frequently from coups), civil servants, and intermediaries for foreign capital had to rely on the state's economic levers to build patronage networks to survive, Indonesia enjoyed greater political continuity and policy predictability, and less political intervention in economic policy decisions (Pack 1994:441–451), from the 1960s through the 1990s.

Both countries suffered from corruption. In Indonesia, the Suharto family and their associates dominated the private sector for three decades. In Nigeria, during the 1980s and 1990s, military rulers failed to account for hundreds of millions of dollars of petroleum exports and revenues[16] (Chapter 2). Transparency International (2003) rates Indonesia as 96th and Nigeria 101st among 102 ranked countries. Although Indonesia's 1997–98 financial crisis and subsequent political instability underscore the need for fundamental reforms, vested political interests may forestall major changes in economic policies. With its predatory political leadership, uneven wealth distribution, and ethnic and religious strife, Nigeria's constraints on policies are at least as great.

MALAYSIA, PAKISTAN, AND BRAZIL

Figure 6-11 shows the comparison in the income distributions of Pakistan, Malaysia, and Brazil. Pakistan, with low inequality, reduced its incidence of poverty from 54 percent in 1962 to 28 percent in 1996. Malaysia, with moderate inequality, decreased its poverty rate from 37 percent in 1973 to 16 percent in 1996, whereas the same rate in Brazil, with high inequality, especially between the rural northeast and the rest of the country, only fell from 50 percent in 1960 to 47 percent in 1996.

Economists break down reductions in poverty rates into the part attributable to growth and the part attributable to changes in income inequality. From 1960 to 1980, before its negative growth of the 1980s, annual growth in Brazil was 5.1 percent compared to Malaysia's 4.3 percent. Brazil's poverty rate during the same period fell from 50 percent to 21 percent. However, if Brazil's inequality had fallen as in Malaysia, Brazilian poverty would have fallen by 43 percentage points rather than by 29. Thus, both the pattern and rate of growth are important determinants of changes in poverty rates (World Bank 1982i:110; World Bank 1990i:47–48).

We can illustrate how growth patterns affect poverty rates by a stylized graph comparing income distribution relative to the poverty line in Pakistan and Brazil. Figure 6-11 shows the **cumulative distribution function**, that is, the percentage of persons who receive no more than a particular income, expressed as a function of that income. For example, when the poverty line is set at 30, the curve on the left in each figure shows that 50 percent of the population is poor. A 50 percent increase in income will shift the distribution function to the right. The reduction in the poverty rate is 37 percentage points in the upper graph (the Pakistani case) but only 27 percentage points in the lower graph (the Brazilian case).

The difference in outcome arises from differences in the slope of the distribution function at the poverty line. If the slope is very steep, implying less inequality in the region of the poverty line, as in the upper graph showing Pakistan, a large number

[16] The Pius Okigbo panel that probed the Central Bank of Nigeria reported that $12.4 billion of oil revenues had disappeared beyond budgetary oversight, 1988 to mid-1994 (Economist 1994a:50). Previous panels investigating corruption have also found billions missing. See Lewis (1994:437–445) and Schatz (1984:45–57).

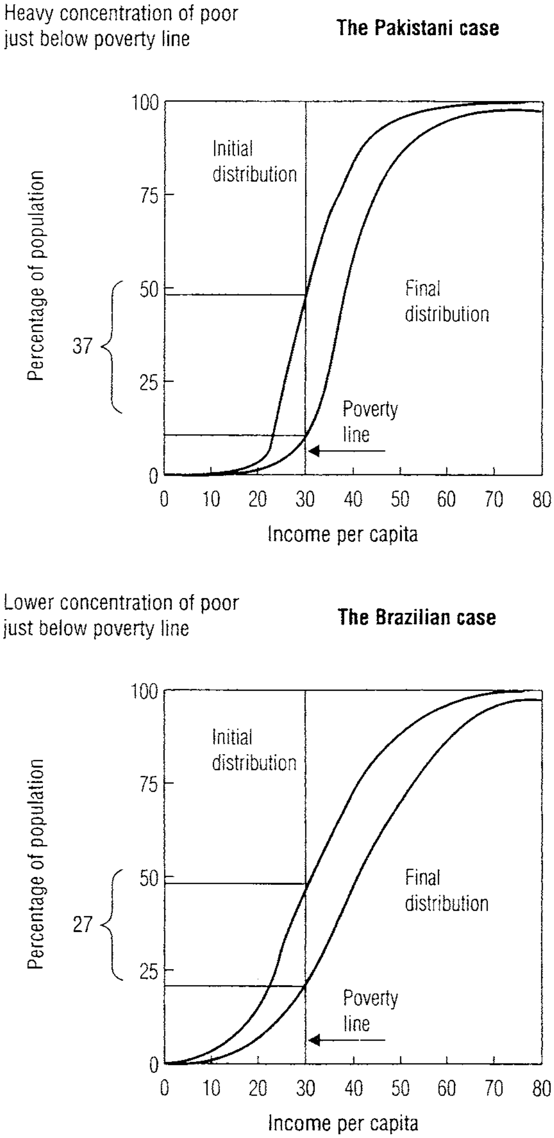


FIGURE 6-11. Different Initial Conditions: The Impact on Poverty Reduction. *Source:* World Bank 1990i:47–48.

of people is concentrated just below the line, and the poverty rate falls substantially. If the slope is less steep, implying greater inequality around the poverty line, as in the lower graph showing Brazil, few people are located immediately below the poverty line. In this case, the same increase in income moves only a few of the poor above the line, and the reduction in the poverty rate will be much smaller.

For example, starting from the distributions available in the early 1990s, a 10-percent increase in the incomes of the poor in Pakistan would reduce the poverty rate by about seven percentage points. Where the distribution is more unequal, as in Brazil, the corresponding figure would be only three percentage points (World Bank 1990i:47).

SRI LANKA

From independence in 1948 to 1977, Sri Lanka, which spent about half of its recurrent governmental expenditures for food subsidy, health, and educational programs, made much progress in meeting its population's basic needs. In the late 1960s and early to middle 1970s, about 20 percent of these expenditures (10 percent of GNP) was for food subsidies, including a free ration of 0.5–1.0 kilograms of rice per week for each person (the remainder sold at a subsidized price). Unlike its large, diverse neighbor, India, Sri Lanka's food programs effectively fed the poor and those in rural areas. The direct ration provided about 20 percent of the calories and 15 percent of the incomes of the poorest 20 percent of the population. In contrast to programs that redistribute cash or assets, there were fewer political obstacles to food redistribution.

One percent of Sri Lanka's population, compared to 25 percent in Bangladesh, subsisted on fewer than 1,700 calories per day in 1970. The food subsidy program reduced mortality and malnutrition greatly. The mortality rate was much lower in Sri Lanka than in Bangladesh, although when cuts in the ration and subsidy were made during periods of high food prices in Sri Lanka, mortality rates increased significantly (Iseman 1980:237–258; World Bank 1980i:62).

Yet Sri Lanka's basic needs policies were achieved at the expense of resources needed for employment and investment. High enrollment rates and weak curricula contributed to a secondary-school-graduate unemployment rate of over 25 percent and to an overall unemployment rate of 20 percent in 1977. Additionally, low food prices hurt agricultural growth, and high business taxes and pervasive government controls discouraged investment. After 1977, governments cut food subsidies and other social spending as part of a strategy for improving farm incentives and attracting foreign investment. Additionally, the civil war beginning in the early 1980s hurt Sri Lanka's social programs.

INDIA

In India, the constitution of 1949 and five-year plans (beginning in 1951) stressed removing injustices, abolishing poverty, and improving income distribution. Beginning in the 1950s, numerous programs were undertaken to achieve these goals, including land reform, village cooperatives, community development, credit and services for the rural poor, educational and food subsidies, minimum wages, rural employment programs, and direct provision for upgrading health, sanitation, nutrition, drinking water, housing, education, transport, communication, and electricity for the poor. As Inderjit Singh (1990:xviii) states

> Those who benefited from . . . antipoverty programs were usually those who had the grassroots power. Deciding who was "poor" and therefore eligible for aid depended on the administrators of these programs, generally the rural elite. So, rather than being a neutral agent for the distribution of gains, government became a trough where different social groups fed in relation to their economic power. Many antipoverty programs in India – such as the Drought Areas Program, the Rural Works Program, and special credit programs – delivered the greater share of their benefits to the richer, not the poorer, segments of society.

But overall progress was limited: Income shares for the poor dropped from the 1950s through the late 1970s, whereas, according to government studies, no appreciable dent was made on absolute poverty. Caste, class, and gender inequalities in income, health, and education have been particularly large in northern India but small in Kerala, with comprehensive land reform and redistribution in the 1970s, substantial investment in health and education, and an emphasis on equality of opportunity by gender.

In India's democracy, the poor pressured political leaders to adopt programs aimed at improving the lot of weaker sections of the population. However, except for Kerala and West Bengal, the landed and business classes dominated the government service and legislatures, and it was not in their interest to administer effectively programs that helped the underprivileged at their expense. Thus by 1970, only 0.3 percent of the total land cultivated had been distributed under land legislation. Furthermore, laws were frequently enacted with loopholes and exemptions that allowed land transfers to relatives, keeping land concentrated in the hands of a few families. Also large moneylenders, farmers, and traders controlled village cooperatives and used most of the social services and capital provided by community development programs (Barhan 1974:255–262; Morawetz 1977:39–41; for studies indicating a decline in the income and asset shares of the poor, see India, Ministry of Agriculture and Irrigation 1976; and Pathak, Ganapathy, and Sarma 1977:507–517).

The fastest poverty reduction probably occurred after liberalization reforms spurred growth. This began first in the mid-1980s with limited delicensing and price decontrol but culminated in the New Industrial Policy in 1991, assumed in response to IMF and World Bank pressure for India to reduce its chronic deficit on international balance on goods, services, and income (or exports minus imports of goods and services). Sala-i-Martin (2002:38) estimates the fall in India's $1/day (1985 PPP) poverty rate from 17 percent in 1980 to 5 percent in 1990 to 1 percent in 1998, and $2/day poverty from 54 percent (1980) to 32 percent (1990) to 14 percent (1998); the World Bank estimates higher rates (see above) but a falling trend during the same period.

Policies to Reduce Poverty and Income Inequality

As we discussed in an earlier section, growth may be the best medicine for poverty alleviation. Here, however, we discuss policies more specifically focused on decreasing poverty, including those targeted at reducing income inequality.

As indicated earlier, the inverted U-shaped curve descriptive of income inequality rises in early stages of development and drops later on. Moreover, income inequality worsens as income increases from low to middle levels and then improves as income advances from middle to high levels.

This pattern, however, may be a consequence of economic policies. Greater inequality is probably a result of past policies that assumed benefits would eventually trickle down to the poor. Furthermore, many LDCs emphasized the growth of the urban-oriented, highly technological, highly mechanized production of Western-style

consumer goods. They neglected production patterns based on indigenous tastes, processes, and factor endowments.

Socialist economists argue that high income inequality is inevitable in a capitalist society, with its gulf between incomes from capital, land, and entrepreneurship, on the one hand, and wage-earners, on the other. However, empirical evidence indicates that *evolutionary* policy changes in a mixed or capitalist LDC, such as Taiwan, South Korea, and early post–World War II Japan, can reduce poverty and income inequality substantially (Ahluwalia, Carter, and Chenery 1979:299–341; Adelman and Robinson 1978; Frank and Webb 1977).

The World Bank (2001i) emphasizes expanding economic opportunity for poor people by building up their assets. As might be expected, the initial distribution of assets and income is crucial in determining income inequality. People who already own property, hold an influential position, and have a good education are in the best position to profit as growth proceeds. Thus, a society with high income inequality is likely to remain unequal or become more so, whereas one with small disparities may be able to avoid large increases in inequality. It simply may not be possible to grow first and redistribute later, because early social and economic position may have already fixed the distribution pattern. To reduce poverty and income inequality, a society may need to enact land reform (discussed in Chapter 7), mass education, and other such programs straightaway rather than waiting until after growth is well under way (Morawetz 1977:41; Nafziger 1975:131–148; Alesina and Rodrik 1994:465–490).

CAPITAL AND CREDIT

In LDCs generally, the poor live primarily from their labor and the rich on returns from property ownership. Not only do the poor have little capital; their poverty also limits their ability to respond to good investment opportunities, such as new seed varieties, fertilizer, tools or their children's education.

Government efforts to supplant traditional money lenders in providing credit for the poor have had only limited success. Even public agencies require collateral. People with few assets can rarely meet such a standard. Furthermore, the substantial staff time needed to process and supervise loans and perhaps arrange technical assistance, as well as the higher risk of bad debts, make it difficult for these credit programs to be self-supporting. Moreover, the limited amount of subsidized credit has frequently not wound up in the hands of the poor but of more influential groups.

Some credit programs (the MicroFund in Manila, Philippines, and the Association for Development of Microenterprise or ADEMI in Santo Domingo, Dominican Republic, both established in 1989) provide training and technical aid for the urban poor, especially women, in **microenterprises** (very small firms). Indonesia's Badan Kredit Kecamatan (BKK), founded in 1982, provides individuals (primarily low-income women) tiny initial loans (a $5 limit) quickly on the basis of character references from local officials without collateral. The BKK is profitable but still reaches the poor, as the smallness of the loan and strictness of the terms cull out the nonpoor. In the early 1980s, the Small-Scale Enterprise Credit Program in Kolkata raised the average income of new borrowers 82 percent within two years, whereas the Kupedes

program for Indonesian microenterprises, established in 1988, increased average borrower incomes from $74 to $183 after three years. These four lending institutions were supported with limited subsidies to help cover their initial administrative costs but not otherwise to subsidize interest rates.

Group lending is one way to avoid subsidies in providing credit for the poor. Under such schemes, similar to the **Grameen Bank** of Bangladesh established in 1988, peer borrowing groups of five or so people with joint liability approve loans to other members as a substitute for the bank's screening process. The group members discuss all loan requests, scrutinize the investment plan and creditworthiness of the borrower, and save an established percentage of the loan, which remains on deposit during the borrowing. Failure to repay by any member jeopardizes the group's access to future credit. The Grameen Bank received limited subsidies from international lenders to start up the group and offer interest rates several points below the market. As of 2003, Grameen had more than 1,170 branch offices, served more than two million clients (94 percent of whom were women), and had a repayment rate of 92 percent (Yunus 2003; World Bank 1990i:66–69; Otero and Rhyne 1994; Jazairy, Alamgir, and Panuccio 1992:206).

The poor can increase investment through risk pooling. In addition to spreading risk throughout the extended family, people spread risk by (usually informal) reciprocal relationships within **patron–client** (superior–subordinate) **systems,** lineage, and village communities (Dasgupta 1993:204–238).

Public investment in roads, schools, electricity, potable water, irrigation projects, and other infrastructure, if made in underprivileged areas, can provide direct benefits for the poor, increase their productivity, or provide jobs for them (World Bank 1980i:41–42).

EDUCATION AND TRAINING

As Chapter 5 contended, investment in education, training, and other forms of human capital yields a stream of income over time. Universal, free, primary education is a major way of redistributing human capital to the relative benefit of the poor. High primary enrollment rates are associated with relatively high income shares for the bottom 40 percent of the population (Ahluwalia 1974:17; Psacharopoulos and Woodhall 1985:258–264; and Chapter 10).

In parts of low-income West Africa, the government not only subsidizes the universities but also provides free tuition and living allowances for the students, whose parents usually have incomes that are higher than the national average and rarely originate from the low-income peasant agricultural sector. Student living allowances comprise nearly half the funds that West African governments spend on higher education. Sub-Saharan Africa spends 22 percent of its public educational budget on higher education although only 2 percent of those aged 18 to 23 attend school at that level. During the economic recession and fiscal constraints of the 1980s and 1990s, Ghana, Tanzania, and Mali, as well as countries suffering from war such as Ethiopia, Mozambique, Somalia, and Liberia, reduced primary enrollment rates. Moreover, the Brazilian government spends 23 percent of its public education budget

on higher education but only 9 percent on secondary education. In addition, the top one-fifth income earners in Chile, Uruguay, Costa Rica, and the Dominican Republic receive more than one-half of the subsidies for higher education, whereas the poorest quintile receives less than one-tenth. Furthermore, many resource-poor low-income countries have sacrificed quality of education at the primary level, often lacking instructional competence, basic mathematics, science, and language textbooks, and other teaching materials (World Bank 1990i:79).

EMPLOYMENT PROGRAMS

Unemployment in LDCs is a major concern. It leads to economic inefficiency and political discontent as well as having obvious implications for income distribution. Open unemployment, in which a person without a job actively seeks employment, is largely an urban phenomenon in LDCs. The unemployed are mainly in their teens and early 20s and usually primary or secondary school graduates. It is rare for unemployed youth to seek an urban job without family support.

Some policies to reduce unemployment include faster industrial expansion, public employment schemes, more labor-intensive production in manufacturing, a reduction in factor price distortion, greater economic development and social services in rural areas, a more relevant educational system, greater consistency between educational policy and economic planning, and more reliance on the market in setting wage rates (see Chapter 10). Public works programs for expanding employment can provide a safety net for the poor and help LDCs respond to recessions and macroeconomic shocks (World Bank 1990i:86–87).

HEALTH AND NUTRITION

LDCs increase efficiency and equity by shifting funds from advanced curative medicine in urban hospitals to basic health services such as preventive care, simple health information, an improved health environment, and nontraditional or middle-level health practitioners in numerous rural clinics. The demand by the poor for medical care is highly price elastic so that when fees are more than nominal, the poor will be the first to drop out. Charging higher fees to the rich for hospital care, however, can generate substantial revenue (World Bank 1990i:86–87). Sickness and insufficient food limit the employment opportunities and earning power of the poor. Food subsidies or free rations increase the income of the poor, lead to better health and nutrition, permit people to work more days in a year, and enhance their effectiveness at work. However, because of the expense of food programs, they are not likely to be continued unless food production per capita is maintained or raised. Poverty is a terribly circular affliction.

POPULATION PROGRAMS

Chapter 8 maintains that the living levels of the poor are improved by smaller family size, as each adult has fewer dependents.

RESEARCH AND TECHNOLOGY

The benefits of research and new technology in reducing poverty are most apparent in agriculture. The introduction of high-yielding varieties of wheat and rice – the **Green Revolution** – has expanded food supplies and reduced food prices for the poor, and increased wage rates and, in some instances, small farmer incomes. But much more research is needed to improve the productivity of food crops on which many low-income farmers depend and to increase jobs and cheap consumer goods output in industry.

MIGRATION

As development proceeds, more jobs are created in the industrial, urban sector, so people move to the cities. Despite some problems, the living standards of migrants employed in the cities, although low, tend to be above those of the rural poor. Generally, city workers send money home, so that farm land has to support fewer people, both of which benefit the rural poor. Yet policies of urban bias, discussed in the next chapter, spur more migration than what is socially desirable.

TAXES

Chapter 14 discusses tax schemes, such as the progressive income tax, to reduce income inequality.

TRANSFERS AND SUBSIDIES

In developed countries, antipoverty programs include income transfers to the old, the very young, the ill, the handicapped, the unemployed, and those whose earning power is below a living wage. But except for some middle-income countries, such as Brazil and Turkey, most developing countries cannot support such programs. For example, in Nicaragua and Ethiopia, where more than fourth-fifths of the population is poor (World Bank 2003h:58–59), welfare payments to bring the population above the poverty line would undermine work incentives and are prohibitively expensive.

An alternative approach is subsidizing or rationing cheap foodstuffs. Subsidizing foods that higher income groups do not eat benefits the poor. For example, sorghum, introduced into ration shops in Bangladesh in 1978, was bought by nearly 70 percent of low-income households but by only 2 percent of high-income households (World Bank 1980i:42–45, 51, 62). Moreover, in Ethiopia, recovering from more than 20 years of war, per capita income is about equal to the absolute poverty line, implying that average economic welfare is the same as the minimum cost of basic needs. Apparently, Ethiopia cannot cut poverty by reducing inequality (Bigsten 2003:110).

EMPHASIS ON TARGET GROUP

Another strategy for improving the lot of the poor is to target certain programs for the poorest groups. India has an affirmative action program favoring the placement of outcastes and other economically "backward castes and tribes" when openings in educational institutions and government positions occur. A number of countries, including India, use industrial incentives and subsidies to help economically

backward regions and train business people from underprivileged groups. Some countries have tried to improve female literacy and educational rates. Others have stressed health and nutritional programs for expectant and nursing mothers and children. Improvements in pensions, provident funds, and social security benefit the elderly (although in Brazil politically unassailable social security has become a fiscal nightmare, excluding most of the poor, who, however, provide a large share of the financing) (Lipton and van der Gaag 1993:31). Upgrading housing in urban areas can increase real income among the poor. Finally, some LDCs in a reversal of the policies of the 1950s and 1960s, have stressed development in the rural areas where most poor live.

The success of public intervention to target groups depends on political support. From 1948 to 1977, Sri Lanka spent about 10 percent of its GNP on food subsidies, including a free ration of 0.5–1.0 kilograms (1.1–2.2 pounds) of rice weekly for each person, with the remainder sold at a subsidized price. But in the late 1970s, to reduce the adverse effect of low food prices on agricultural growth, the Junius Jayewardene government replaced this universal food subsidy with a less costly targeted food stamp program that gradually eroded in value with inflation over time. The middle class, who no longer gained from the more cost-effective program, withdrew its crucial political support.[17] Similarly, a food subsidy directed to the poor in Colombia was so tightly targeted that it lacked an effective political constituency, and was abolished at a change of government (World Bank 1990i:91–92). In the 1980s and 1990s, Indians have increasingly opposed the job and university-entrance reservation of 22.5–52 percent (the amount varying by state), and many employers have instituted hiring policies to circumvent the job reservation.

Michael Lipton and Jacques van der Gaag, consultants for the World Bank, explain that

> Targeting is not simply a Scrooge-like way to limit the fiscal cost of reducing poverty. It can also prevent undue dependency among the poor and wrong incentives. Conversely, incentives can be used to improve targeting. Where the rich avoid the use of public health clinics because of crowding or low-quality care, these clinics can be used as distribution centers for, say, food stamps. This kind of self-targeting has proved effective in Jamaica. Ahmad warns of the risk, however, that such a scheme, although it may avoid leakage to the rich, may exclude or deter many of the poor. (Lipton and van der Gaag 1993:9, citing chapters by Besley and Kanbur, pp. 67–90; Ahmad pp. 359–77)

Another problem is assessing and verifying low incomes, difficult enough in DCs with their literate populations accustomed to filling in tax forms. As an example, Timothy Besley and Ravi Kanbur (1993:71) point to "a coupon program that distributed food every two weeks through government-run supermarkets [using] income to determine who could participate in Recife, Brazil. The program revealed several

[17] Undoubtedly, the disruption of production and deterioration of well-being from Sri Lanka's ethnic conflict and civil war have been major contributors to a substantial increase in malnutrition in the 1980s and 1990.

problems. . . . It is difficult to target income if income reporting is arbitrary. . . . A coupon program requires extensive bookkeeping and administrative cost." Building on this experience, the Brazilian government modified the program successfully, reaching very low-income neighborhoods without coupons. Any leakage to the non-poor was less expensive than administering the cumbersome coupon program.

July L. Baker and Margaret Grosh (1994:983–995; Grosh 1994) found that in Latin America, geographic targeting (especially when the size of unit used in making decisions was small) was as effective as means tests in ensuring that benefits go to the poorest 40 percent of the population. Because of its simplicity and cost-effectiveness, geographic targeting may be a legitimate alternative to self-targeting.

However, today we have few figures on poverty and inequality by region or community within a nation. Identifying and reaching the poor to enable their geographical targeting requires detailed poverty mapping, with data on poverty assessment and "basic needs" indicators at local levels. Few national surveys are adequate for "guid[ing] poverty alleviation efforts aimed at attaching poverty at local levels" (San Martin 2003:173).

WORKFARE

Self-targeting involves designing schemes based on self-regulation that only the poor will pass. One program that provides food security while relying on self-selection by the poor is food or other income in exchange for work. A work requirement, combined with low wages, guarantees that only the poor will apply for jobs where they cannot otherwise be identified, thus allowing a greater coverage of the poor with a given budget. When India's statutory minimum wage doubled in 1988, Maharashtra state's Employment Guarantee Scheme doubled the wage rate for food-for-work recipients but because this wage did not effectively ration jobs to the most needy, scheme administrators used informal rationing (Lipton and van der Gaag 1993:34–35; Besley and Kanbur 1993:78–79). Kirit Parikh and T. N. Srinivasan's (1993:403–406) simulation showed that a well-designed, well-executed, and well-targeted works program improves the welfare of the rural poor and increased economic growth, even if the resources are raised through additional taxation. Even if the works program means other investment foregone, the sacrifice in growth is modest and the effect on the welfare of the poor is positive. In some Indian villages, employment-guaranteed workfare served to stabilize income, reducing the "hungry season." A study of a food-for-work program in Bangladesh found that the foregone earnings of participants in the program were one-third of their earnings (World Bank 1990i:96–100; also Sen 1993:40–47).

INTEGRATED WAR ON POVERTY

A study by Irma Adelman and Sherman Robinson (1978) indicates that, taken singly, most of these policies cannot end rising income inequality occurring with development. Only a total mobilization of government policies toward programs to help the poor directly – a war on poverty – succeeds in reducing income inequality and increasing absolute incomes. And successful countries, such as Taiwan, South Korea,

Israel, and Singapore, all redistributed before growth. For Adelman and Robinson, the redistributed asset changes with the level of economic development. At first when the economy is primarily agricultural, land is redistributed. With further development, the primary asset is physical capital. At a later stage, the redistribution of human capital through education and training for the poor is emphasized.

It's easy enough to list ways the state can promote opportunity, empower the poor, and enhance their security (World Bank 2001h: vi). Often, however, political elites and their allies who are threatened by programs that redistribute income and reduce poverty dominate the state. Addressing poverty requires much more than knowing what policies can reduce poverty; most important are citizens with vested interests in reducing poverty and a government that has the political will to attack poverty.

ADJUSTMENT PROGRAMS

Chapters 16, 17, and 19 discuss how the IMF and World Bank compel LDCs experiencing a chronic external deficit and debt problem to undertake economic reform, structural adjustment, and macroeconomic stabilization policies to receive financial support, such as the IMF's loans of "last resort." Adjustment and stabilization programs need to provide compensatory transfers or other safety nets for the incomes and livelihoods of weaker segments of the population – the poor, minorities, rural and working people, and women and children – to avoid pushing them below the line of endemic poverty. Funds to reduce the short-term costs of adjustment need to be expanded, including moneys for public works, food-for-work projects, and retrenched public-sector workers, as well as nutrition, potable water, and health care for disadvantaged classes. These programs, if timely and well targeted, can help garner popular support for the necessary adjustment and reduce the society's vulnerability to hunger and disease.

Can we not expect that donor or lender support (through the IMF, World Bank, or major shareholder government) might provide for social funds to contribute to poverty reduction and the political sustainability of the adjustment process? The IMF (2003b) established a **Poverty Reduction and Growth Facility (PRGF)** in 1999 to broaden the objectives of its **concessional** (that is, at least 25 percent grant component) lending to "include a more explicit focus on poverty reduction in the context of a growth oriented strategy." In addition, the World Bank structural adjustment program has included a Program of Action to Mitigate the Social Costs of Adjustment (PAMSCAD). In 1988, a PAMSCAD for Ghana provided funds for public works and food-for-works projects to reduce the immediate harm to retrenched public sector workers from privatization programs to increase productivity in the long run (Nafziger 1993; Morrisson 2000). Yet as Stewart and van der Geest (1998) show, retrenched and redeployed public-sector workers who were relatively well off benefited substantially, whereas poor households benefited little. Indeed, their survey of 10 LDCs undergoing adjustment during the 1970s and 1980s indicate that only social funds programs designed and funded domestically have been successful in reducing poverty, hunger, and disease. In contrast, external programs have usually failed.

The evidence suggests that adjustment programs are initially likely to reduce real wages and worsen the condition of the poor. To be sure, the World Bank **Social Dimensions of Adjustment Projects (SDA)** attempts to find policy instruments to achieve economic development and poverty reduction, with emphasis on short-term compensation where adjustment programs have immediate costs for identifiable groups. However, LDC planners find it politically difficult to compensate the poor for the impact of adjustment programs. To illustrate, in Ghana, the **Program of Action to Mitigate the Social Costs of Adjustment (PAMSCAD)**, beginning in 1988, provided little for projects to offset declining health care and potable water, malnourishment among women and children, and adjustment costs by the poorest classes for the redistributive effect of Ghana's adjustment programs struck at powerful vested interests, who fought back to regain their ascendancy at the expense of the poor. The Bank and (in other contexts) the Fund have been aware of the internal politics of adjustment that resulted in privileged interest groups but not the poor being effective in receiving compensation for adjustment (Grant 1989:18–20; Streeten 1989:16–17; World Bank 1988a:29–49; Parfitt 1990:128; Nelson 1989:102; Food and Agriculture Organization of the U.N. 1991:114; Abbey 1990:39; Tskikata 1990:161; Nafziger 1993:174–175).

In addition to recipients' constraints on redistribution, the Bank/Fund shareholders put constraints on projects. The PRGF is a renaming of the IMF's structural adjustment and enhanced structural adjustment facilities (SAF and ESAF) without changing the conditions set. The IMF, despite the name change for the facility, faces the same institutional limitations as before. DCs, including especially the United States, with congressional budget limitations, have provided few concessional funds for the PRGF or for the World Bank's concessional window, the **International Development Association**. Moreover, the United States (with a 17 percent share) and other DCs (total, including the United States, 56 percent) shareholders, committed to the revolving nature of IMF loan funds, want the Fund or Bank to set conditions for stabilization and reform that maximize the chances of the funds' repayments. Thus, LDCs, some of whom are continually facing conditions for Bank or Fund lending, face major constraints in redistributing income domestically.

Income Equality Versus Growth

Some development economists maintain that inequality, by spurring high investment rates, benefits the poor, as accumulation raises productivity and average material welfare. Gustav F. Papanek (1967), an advisor to Pakistan during the late 1950s and early 1960s, asserted a conflict "between the aims of growth and equality" such that "great inequality of incomes is conducive to increased savings" and that "great inequality of incomes is conducive to increased savings." Mahbub ul Haq (1966), an eloquent World Bank spokeperson for meeting LDC basic needs in the 1970s and 1990s, contended when he was Pakistani planner in the 1960s: "The underdeveloped countries must consciously accept a philosophy of growth and shelve for the distant future all ideas of equitable distribution and welfare state. It should be recognized

that these are luxuries which only developed countries can afford." His conclusion was "additional output should be distributed in favor of the saving sectors." His was "basically a philosophy of growth as opposed to a philosophy of distribution [and] is indispensable in a period of 'take-off'." In the 1980s, as Pakistani planner, he stated views similar to those he held in the 1960s.

The University of California, Los Angeles, economist Deepak Lal (1990) concluded from comparative studies "that growth does 'trickle down,' whilst growth collapses lead to increasing poverty." Additionally, "direct transfers and social expenditures to alleviate poverty were found not to have made any appreciable dent on poverty." Indeed expanding entitlements have "the effect of 'killing the goose that laid the golden egg'." A part of his finding is the "Director's law" stating "that most politics (except for the Platonic variety) leads to income transfers from the poor and the rich to the middle class." For Lal, "it is not surprising that a common finding of many empirical studies of poverty redressed in countries with the most widespread welfare systems is that these programs far from relieving absolute poverty have tended to institutionalize it." Lal's conclusions about growth trickling down to the poor and the inefficacy of welfare programs contradict studies by the World Bank and International Labor Office (Chenery, Ahluwalia, Bell, Duloy, and Jolly 1974; Ahluwalia, Carter, and Chenery 1979:299–341; World Bank 1980i; World Bank 1990i; Lipton and van der Gaag 1993; Lecaillon, Paukert, Morrisson, and Germidis 1994).

Adelman and Morris (1973) oppose a strategy of waiting for later stages of development to emphasize income distribution. Initial income and physical and human capital distribution determine the trend inequality. People owning property, holding an influential position, and receiving a good education are in the best position to profit once growth begins. Thus a society with initial income inequality that begins growth is likely to remain unequal or become more so, whereas one with small disparities may be able to avoid large increases in inequality. A society may not be able to grow first and redistribute later, because early socioeconomic position largely fixes the pattern of distribution, at least until higher income levels are approached. Reducing inequality requires immediate priority through land reform, mass education, and other means, rather than leaving redistribution until after growth has taken place.

The Cambridge economist Joan Robinson (1949) argues that even if you assume that inequality spurs capital accumulation and growth, it may not be prudent for the LDC poor to favor inequality, thus risking their children's health and nutrition to bequeath a fortune to their grandchildren. Promoting saving through inequality is more costly than other alternatives such as government policies to promote both equality and capital formation.

Torsten Persson and Guido Tabellini (1994:600–621) argue that inequality is harmful for growth, since in a society with substantial distributional conflict, political leaders are compelled to produce economic policies that tax investment and growth promotion to redistribute income. In sub-Saharan Africa, in the 1970s through the early 1980s, shrinking economic pie slices and growing distributional conflict added pressures to national leaders, whose response was usually not only antiegalitarian

but also antigrowth, hurting small farmers' incentives, taking peasant savings for government industry, building government enterprises beyond management capacity, using these inefficient firms to give benefits to clients, and allocating educational funds to maintain the standing of their children and block the upward mobility of the children of workers and farmers. Regime survival in a politically fragile system required marshalling elite support at the expense of economic growth. Spurring peasant production through market prices and exchange rates interfered with national leaders' ability to build political support, especially in cities (Nafziger 1988). Yet the link between stagnation and inequality in Africa may be exceptional. Still we cannot be certain that there is generally a tradeoff between growth and equality. Data are not of sufficient quality to enable us to generalize about the relationship between growth and equality in LDCs.

Generally accelerating economic growth through stable macroeconomic policies is perhaps the most satisfactory *political* approach to reducing poverty and dampening distributional conflict. A number of newly industrializing Asian countries, such as South Korea, Taiwan, Malaysia, and Thailand, have decreased poverty a great deal through rapid economic growth; and historically workers gain more from a larger GNP pie than from a larger share of a pie that remains the same size. When the income pie is not enlarged, any gains the underprivileged classes make are at the expense of the more privileged classes: Such a redistribution from the higher to lower income classes is difficult to achieve politically. However, when the GNP pie grows, the piece of pie can be larger for both privileged and underprivileged groups. The remaining chapters of this book focus on ways of accelerating growth. As the next section indicates, the questions of poverty, inequality, and government policy are intertwined with those of political order.

Poverty, Inequality, and War

War, state violence, and rebel resistance threaten the livelihoods and voices of millions of poor in the developing world. About 20 percent of Africans live in countries seriously disrupted by war or state violence. The cost of conflict includes refugee flows, increased military spending, damage to transport and communication, reduction in trade and investment, and diversion of resources from development. The World Bank (2000a:57–59) estimates that a civil war in an African country lowers GDP per capita by 2.2 percentage points yearly.

For example, Sierra Leone, in West Africa, is virtually the poorest country in the world (World Bank 2001h:38; World Bank 2003h:14–16). Sierra Leone's "tragic conflict . . . has taken a terrible toll through lost lives, rape, mutilation, and the psychological harm to boys abducted into the army and militias. The effects of conflict – destruction of fragile institutions of governance, flight of skills, personal losses, and social wounds that could take generations to heal – create a vicious cycle of continued poverty and strife" (World Bank 2001h:38).

What effect do poverty and inequality have on war? Wars and massive state violence occur predominantly in low-income countries, especially those experiencing

negative or stagnant economic growth. A large proportion of these states are also weak or failing, providing few, if any, public goods or services and experiencing breakdown in the rule of law.

Economic stagnation and decline worsen the feeling of **relative deprivation**, people's perception of social injustice based on a discrepancy between goods and conditions they expect and those they can get and keep. The deprivation often results from income or communal (ethnic) inequality (Stewart 2000:16), where people's income or conditions are related to those of others within society. Relative deprivation spurs social discontent, which provides motivation for collective violence (Gurr 1970). Tangible and salient factors such as a marked deterioration of living conditions, especially during a period of high expectations, are more likely to produce sociopolitical discontent that may be mobilized into political violence.

The political scientist Kalevi Holsti (2000) finds that the policies of governing elites, not rebel action, are at the root of most conflicts. Slow or negative per-capita growth puts pressure on ruling coalitions. Ruling elites can expand rent-seeking opportunities for existing political elites, contributing to further economic stagnation that can threaten the legitimacy of the regime and future stability. Or they can reduce the number of allies and clients they support, undermining the legitimacy of the regime, risking opposition by those no longer sharing in the benefits of rule, and increasing the probability of regime turnover, such as coups. To forestall threats to the regime, elites may use repression to suppress discontent or capture a greater share of the majority's shrinking surplus above subsistence, reducing future investment and growth. Amid economic crisis, either strategy, expanding rent seeking for elites or reducing the size of the coalition, exacerbates the potential for repression, insurgency, and civil war. Overall economic stagnation interacts with political predation in a downward spiral, a spiral seen in African countries such as Angola, Ethiopia, Sudan, Somalia, Liberia, Sierra Leone, and the People's Republic of Congo (Kinshasa) (Nafziger and Auvinen 2003; Nafziger and Auvinen 2002:154–155).[18]

This stagnation and decline is often associated with, and exacerbated by, a predatory state, driven by ethnic and regional competition for the bounties of the state. Elites extract immediate rents and transfers rather than providing incentives for economic growth. In some predatory states, the ruling elite and their clients "use their positions and access to resources to plunder the national economy through graft, corruption, and extortion, and to participate in private business activities" (Holsti 2000:251). People use funds at the disposal of the state for systematic corruption, from petty survival venality at the lower echelons of government to kleptocracy (thievery) at the top.

Wars are more likely to occur in societies in which the state is weak and venal, and thus subject to extensive rent seeking, acquiring private benefit from public resources

[18] Other economic factors, such as large military expenditures and a lack of adjustment to chronic external debt, together with political factors such as ethnic antagonism, contribute to war. See Nafziger and Auvinen (2003); Nafziger, Stewart, and Väyrynen (2000); Collier and Hoeffler (1998:563–573); and Berdal and Malone (2002).

(Väyrynen 2000:440). Cause and effect between state failure and rent seeking are not always clear. State failure need not necessarily result from the incapacity of public institutions. Instead, although "state failure can harm a great number of people, it can also benefit others," (ibid., p. 442) especially ruling elites and their allies. These elites may not benefit from avoiding political decay through nurturing free entry and the rule of law and reducing corruption and exploitation. Instead, political leaders may gain more from extensive unproductive, profit-seeking activities in a political system they control than from long-term efforts to build a well-functioning state in which economic progress and democratic institutions flourish. These activities tend to be pervasive in countries that have abundant mineral exports (for example, diamonds and petroleum), such as Sierra Leone, Angola, Congo–Kinshasa, and Liberia, while predatory economic behavior has a lower payoff in mineral-export-poor economies such as Tanzania's.[19]

Conclusion

Poverty is multidimensional, referring not only to low income but also to hunger, illiteracy, poor health, inadequate infrastructure, and lack of power and voice. In the last half century, inequality in the Human Development Index (HDI) has fallen sharply, especially spurred by reductions in global health and educational inequality.

Absolute poverty is below the income that secures the bare essentials of food, clothing, and shelter. The World Bank and other international agencies have drawn \$1/day and \$2/day poverty lines, based on 1985 purchasing power parity (PPP). Although the initial \$1/day poverty line was based on income essential to prevent undernourishment, after 1985, international poverty has been linked to a PPP exchange rate income rather than access to food.

Sala-i-Martin, who interpolates income distribution by percentiles rather than by the World Bank's quintiles, estimates that 6.7 percent of the world was suffering \$1/day poverty and 18.6 percent \$2/day poverty in 1998. The highest rate is probably in Africa, with 40 percent poverty at \$1/day and 64 percent at \$2/day, with virtually no reduction in poverty rates from 1950 to 2000. The overwhelming majority of the world's poor live in sub-Saharan Africa, South Asia, and East Asia.

[19] Death and tragedy in natural disasters, as in war and state violence, strike the poor disproportionately while generally sparing the affluent. Although richer nations do not experience fewer natural disasters than poorer nations, 90 percent of the deaths from these disasters are in LDCs (Kahn 2005:271–284). In late 2003, an earthquake, with a magnitude of 6.3 on the Richter scale and with an epicenter in Bam, Iran, an ancient city of 200,000 people, killed 30,000 people. About 70–90 percent of residences were constructed mainly of sun-dried mud bricks. In comparison, the quake measuring 6.5 on the Richter scale that struck the Northridge area of Los Angeles, California, in 1994 killed 57 people (Murphy 2003: section 4, p. 2). Furthermore, Indian monsoons are much more likely to kill the poor living in hovels in the lowlands than the rich living in well-constructed houses. The rich can engineer their dwellings and afford infrastructure and health and emergency services that reduce their risk of death from storms and earthquakes. See Chapter 17, which discusses how low-income countries are vulnerable to shocks of natural disasters and large fluctuations in export or import prices, and Skoufias (2003:1087–1102), who examines how households cope with natural disasters and economic crises.

The World Bank's higher poverty rates are based on consumer data from household surveys, whose consumption spending was substantially underestimated relative to national-income accounts.

Unlike the World Bank, both Sala-i-Martin and Bhalla show that the world's individual income inequality fell from 1980 to 2000, a result of a shift of large numbers in high-populated Asia, especially in China and India, from the world's lower to middle class. Still, global income inequality exceeds that for any single country.

Sen's concept of poverty focuses on capabilities rather than attainments, meaning that a high-income person who squanders his resources so that he lives miserably would not be considered poor. Sen argues that policy makers need the following measures of poverty: headcount or poverty percentage, income-gap or the additional income needed to bring the poor up to the level of the poverty line, and Gini coefficient or concentration of income among the poor.

Early economic development in LDCs often results in reduced income shares for the lowest income groups. Inequality tends to follow an inverted U-shaped pattern, first increasing and then decreasing with growth in per capita income.

People in absolute poverty are undernourished and have low resistance to disease. A high infant mortality rate, a life expectancy of about 45 years, and illiteracy characterize this group. Most of the world's absolute poor live in rural areas and own few assets. Disproportionate shares of the poor are women and children.

Growth rates of national income are closely correlated with the income growth of the poorest 20 percent. Notwithstanding this and the weakness of poverty data, there is much that LDCs can do to reduce poverty and inequality.

Taiwan's and South Korea's stress on land reform, education, and labor-intensive manufacturing, and Indonesia's emphasis on rural development have succeeded in increasing the income shares of the poorest segments of their populations. By contrast, during the first quarter century of independence in India, many of its programs to aid the poor were circumvented by administrators, landlords, and businesspeople whose economic interests were threatened by such efforts. India's poverty rates fell rapidly from the mid-1980s through the 1990s, when liberalization reforms spurred growth.

Policies used to reduce poverty and income inequality include credit for the poor, universal primary education, employment programs, rural development schemes, progressive income taxes, food subsidies, health programs, family planning, food research, inducements to migration, income transfers, affirmative action programs, targeting programs for the poorest groups, and workfare schemes for which only the poor will qualify. Designing "safety nets" is essential for protecting poor people during economic adjustment and stabilization programs. Ultimately, however, the success of these policies depends on a government with the political will to attack poverty.

Economists disagree on whether there is a tradeoff or interlink between equality and growth. Most economists agree, however, that accelerating economic growth through stable macroeconomic policies is the most satisfactory political approach to reducing poverty and reducing distributional conflict.

Poverty and inequality increase the risk of war, state violence, and rebel resistance in LDCs.

TERMS TO REVIEW

- absolute poverty
- Adelman–Morris theory of growth and inequality
- adjustment
- capability
- concessional lending
- crowding
- cumulative distribution function
- elasticity of propoor growth
- elasticity of the poverty gap with regard to the Gini index
- Gini coefficient
- Grameen Bank
- Green Revolution
- group lending
- headcount approach to poverty
- income-gap approach to poverty
- international balance on goods and services
- International Development Association
- International Monetary Fund (IMF)
- inverted U-shaped curve
- Kuznets curve
- Lorenz curve
- microenterprises
- "missing" women
- $1/day poverty
- patron–client systems
- poverty line
- relative deprivation
- standard deviation
- terms of trade
- $2/day poverty
- variance
- workfare
- World Bank

QUESTIONS TO DISCUSS

1. What is the meaning of $1/day and $2/day poverty? What are the differences among the World Bank, Surjit Bhalla, and Xavier Sala-i-Martin in their views of poverty and inequality? Why do they have different figures on $1/day and $2/day poverty?
2. What are the various dimensions of poverty other than low incomes?
3. What is meant by absolute poverty? To what extent is poverty culturally relative? What are some characteristics of absolute poverty? How close have poverty definitions been tied to food availability?
4. How much poverty is there in the world? In the developing world? By region? How have poverty rates changed from 1820 to the present?
5. Assess the reliability and validity of LDC statistics on poverty and income inequality.
6. Which LDCs have the lowest poverty rates? The highest poverty rates? What are the reasons for differences in poverty rates?
7. Is poverty synonymous with low well-being?
8. What does Sen mean by the Gini approach, headcount approach, and income-gap approach to poverty? What are the advantages of using all three approaches to depict poverty as opposed to using only the headcount approach?
9. What has happened to global income inequality since 1970?
10. Design a program for gathering information on poverty and income distribution for low-income countries (or a particular low-income country), indicate data

and measures you would stress, and explain how this information can be used to influence government policy.

11. How do Irma Adelman and Cynthia Taft Morris show how economic growth in a dual economy explains the Kuznets curve?
12. Does the rising segment of the inverted U-shaped curve imply that the poor suffer from economic growth?
13. Why are cross-national income distribution data for different per-capita income levels *at a given time* inadequate for generalizing about income distribution changes with economic development over time?
14. Which policies do you think are most effective in reducing poverty and income inequality in developing countries?
15. Discuss why LDC women have higher poverty rates than men. What LDC policies would reduce female poverty rates?
16. Is there a tradeoff between LDC policies seeking to reduce income inequality and those trying to stimulate growth? Does the tradeoff vary among different LDCs?
17. What conditions do you think are necessary for economic inequalities to contribute to war and political violence?

GUIDE TO READINGS

Major protagonists in the debate on measuring poverty and income inequality are Bhalla (2002), Sala-i-Martin (2002), and – for the World Bank – Milanovic (2002b) (with a critique of Sala-i-Martin at Milanovic 2002a). Zettelmeyer (2003:50–53) examines views of "Bhalla versus the World Bank." Ravallion (2003) and Bhalla (2003) engage in debate online. Firebaugh's survey (2003) of what we know about global income inequality is useful. Deaton and Kozel (2004) show how that critics of Indian (and thus World Bank) official figures on poverty overestimate poverty reduction in the 1990s by overstating flaws in consumer surveys relative to national accounts and neglecting the sensitivity of length of the reporting period to measurement error. The latest poverty data from around the world is at http://www.worldbank.org/research/povmonitor/.

Ahluwalia, Carter, and Chenery (1979:299–341) and Ravallion, Datt, and van de Walle (1991:345–361) provide early analysis of poverty and income distribution by World Bank economists. Narayan et al.'s participatory poverty assessment (2000) is valuable. For recent data and analysis, consult the World Bank's annual *World Development Report* (especially 2001i on attacking poverty), *World Development Indicators,* and *Global Economic Prospects and the Developing Countries.* The U.N. Development Program's annual *Human Development Report* (especially for 2003) has useful analyses of poverty and inequality. Bourguignon and Morrisson (2002:727–744) are the definitive source on trends in world inequality from 1820 to the present.

Deaton (2003) indicates how to monitor poverty, arguing that the World Bank's reliance on household survey data for measuring poverty is superior to Bhalla's

and Sala-i-Martin's. Lacerchi, Saith, and Stewart (2003:243–274) analyze four approaches to measuring poverty.

Data on income distribution for researchers are available at WIDER, http://www.wider.unu.edu/wiid, and from Deininger and Squire (1996:259–287).

N. Kakwani (1993:43–66) and Blackwood and Lynch (1994:567–578) have an excellent assessment of mathematical measures of poverty and income inequality. Kakwani and Son (2005) propose a propoor policy index. For critiques of the literature, see Moll (1992:689–704), Lecaillon et al. (1984), Lipton and van der Gaag (1993), and Alderman (1993:115–131).

Sen (1973, 1981, 1987, 1992, 1999) is the foremost analyst of concepts and measures of poverty and welfare; Sugden (1993:1947–1962) evaluates his contribution. Dasgupta (1993) reconciles the theoretical considerations of welfare economics and political philosophy with the empirical evidence concerning poverty and deprivation. Srinivasan (1994b: 1842–1855) has an insightful review of Dasgupta's work. Fields (1994:87–102) has an excellent survey of the literature.

Kuznets (1955:1–28) first hypothesized that over time, inequality within a country follows an inverted U-shaped curve. Williamson (1991), Adelman, and Morris (1973; 1978:245–273) and Sundrum (1992) use historical data to examine Kuznets's hypothesis. Fields (2002) examines distribution and development in LDCs.

The World Bank's *World Development Report 1990* focuses on a discussion of LDC poverty, including policies to reduce poverty. Major studies of policies for improving income distribution include Lipton and van der Gaag (1993), Baker and Grosh (1994:983–993), Besley and Kanbur (1993:67–90), Parikh and Srinivasan (1993:397–411), Chenery et al. (1974), Adelman and Robinson (1978), Frank and Webb (1977), and Grosh (1993). Pyatt and Thorbecke (1976) discuss planning to reduce poverty, and Clements (1995:577–592) provides a poverty-oriented benefit–cost approach to development projects. Lubker, Smith, and Weeks (2002:555–571) criticize the policy implications of Dollar and Kraay (2002:195–225): that standard World Bank and IMF policy adjustment packages are good for the poor.

Lipton and Ravallion (1995) have a survey on poverty and policy; and Adelman and Robinson (1989) and Taylor and Arida (1988) on income distribution. Singh (1990) and Sundrum (1987) analyze poverty and income distribution in prereform India. Datt and Ravaillon (2002:89–108) examine how India's economic reform and economic growth affected poverty; the national poverty rate fell from 36 percent of the population in 1993–94 to only 26 percent in 1999–2000. Nafziger (1988) focuses on explanations for income inequality in sub-Saharan Africa.

UNICEF's annual *State of the World's Children* indicates accompaniments of absolute poverty, especially among children in the third world. Dasgupta (1993), Dwyer and Bruce (1988), Tinker, Bramsen, and Buvini'c (1976), and Parpart (1986) examine gender income differentials in developing countries.

On the effect of LDC structural adjustment and reform on poverty, see Morrisson (2000:207–237), Stewart and van der Geest (1998), Lipton and van der Gaag (1993), the Food and Agriculture Organization of the United Nations (1990), Nafziger (1993), Nelson (1989), Commander (1989), and Adedeji, Rasheed, and Morrison

(1990), and various World Bank publications. For more on the role of microenterprises in economic development, see Yunus (2003); World Bank (1990:66–69); Otero and Rhyne (1994); Jazairy, Alamgir, and Panuccio (1992:206); and Liedholm and Mead (1987).

On income equality versus growth, see Alesina and Rodrik (1994:465–490) and Persson and Tabellini (1994:600–621).

Econometric and political economy analyses for the U.N. University/World Institute for Development Economics Research, Helsinki, by Auvinen and Nafziger (1999:267–290); Nafziger and Auvinen (2002:153–163); Nafziger and Auvinen (2003); and Nafziger, Stewart, and Väyrynen (2000) indicate the link between inequality and political instability. However, the World Bank researchers Collier and Hoeffler (1998:563) find "insufficient data to introduce distributional considerations into the empirical analysis." Berdal and Malone (2000) include articles by Collier (2000:91–111) and critics focusing on whether economic greed or inequality-based grievances drive contemporary civil wars. Not surprisingly, both greed and grievances are part of the economic agenda in these wars.

7 Rural Poverty and Agricultural Transformation

In LDCs, 3.3 billion (63 percent of 5.3 billion) people and 500–700 million poor people live in rural areas (by the World Bank count). The rural poor represent about 70 percent of $1/day poverty in LDCs; put another way, 20–25 percent of LDC rural people are poor, a higher percentage of poor than for the total LDC population.[1] And in most developing countries, the agricultural population is growing, pressing on a limited arable land base. Moreover, the rural poor become urban poor as they migrate to densely populated cities in their search for employment.

The late 1980s were the first time in world history that the majority of the world's labor force was engaged outside agriculture. Although only 4 percent of the world's output originates in agriculture, almost half of global labor is in agriculture (World Bank 2003h:48, 192).

Agriculture is an important component of LDC economies. Sixty percent of the labor force in low-income countries is employed in agriculture, which produces about 25 percent of GDP. Even in middle-income countries, where agriculture's share of GDP is only about 10 percent, the sector still accounts for more than 40 percent of employment (Chapter 4). "When coupled with agro-related industries and food-related services, its share, even among middle-income countries, is typically 25 to 40 percent of GDP" (World Bank 2004a:103).

Clearly, any approach to reduce poverty and accelerate economic growth should emphasize rural development and rural income distribution, including increasing the productivity and income of the rural poor. For this to occur, the LDC rural poor need increased access to productive resources, land and capital, and technology. This chapter concentrates on both increased rural relative to urban income and reduced intrarural inequalities as components of a strategy to reduce rural poverty.

[1] The lower incomes of farmers compared to others in LDCs contrasts to DCs, where average incomes of farmers are higher than the national average, with 250 percent of GDP per capita in the Netherlands, 175 percent in Denmark, 160 percent in France, and 110 percent in the United States and Japan. "Off-farm income for major US field crops is more than ten times farm income and eight times government payments. These payments exceed what US farmers make from the market. Indeed most US farms lose money from farming alone. DC agricultural subsidies help the relatively well-off rural households, do so very inefficiently, and depress demand and prices for farm goods in LDCs (World Bank 2004a:107–108). See Chapter 17 on the protective effect of U.S. and DC farm subsidies.

Scope of the Chapter

This chapter examines rural poverty and indicates policies to ameliorate it. We examine agriculture's role in transforming the LDC economy, identify major rural groups (including the major world regions) comprising the poor, discuss the differences between rural and agricultural development, show that present-day rural–urban differences in LDCs are greater than in the West in the 19th century, and compare agricultural productivity in DCs and LDCs. Then we look at the transition from subsistence to specialized farming to clarify what farming is like in LDCs, and examine the increasing role of multinational corporations and contract farming in LDCs. Later, we compare the growth of food production per capita in LDCs and DCs, explain the reasons for large food deficits and insecurity in sub-Saharan Africa, discuss Africa's poor agricultural policies and institutional failures, compare the growth in average food output in India and China, identify the world regions with current and projected food surpluses and deficits, and analyze the determinants of the growth in food demand. Finally, we indicate the relative importance of fish, meats, and grain in world food consumption, discuss factors contributing to low income in rural areas, examine policies to increase income and reduce poverty in rural areas, and assess whether the agricultural biotechnology revolution is of net benefit in the developing countries.

Agriculture's Role in Transforming the Economy

Agriculture contributes to economic growth through domestic and export surpluses that can be tapped for industrial development through taxation, foreign exchange abundance, outflows of capital and labor, and falling farm prices. As agricultural product and factor markets become better integrated by links with the rest of the economy, farm income expansion augments the market for industrial products. Some LDCs squeeze agriculture in early stages of modernization, hoping to skip a stage in transforming the economy, a strategy virtually doomed to failure (Timmer 1998:116–122 and Chapter 5 on agriculture and balanced growth). Indeed, Lewis's classical model (1954:149) requires rapid agricultural growth preceding or accompanying economic development:

> Now if the capitalist sector produces no food, its expansion increases the demand for food, raises the price of food in terms of capitalist products, and so reduces profits. This is one of the senses in which industrialization is dependent upon agricultural improvement; it is not profitable to produce a growing volume of manufactures unless agricultural production is growing simultaneously. This is also why industrial and agrarian revolutions always go together, and why economies in which agriculture is stagnant do not show industrial development.

Japan's rapid growth from 1868 to 1914 was fueled by a research-based Green Revolution in rice, low food prices, and low real wages. As in Japan, rapid economic growth generally accompanied rapid growth in agriculture and its technical progress

that paradoxically took place when agriculture's shares of output and the labor force were declining. Engel's law, which posits an income elasticity of demand for agricultural products less than one and an elasticity greater than one for manufactures, ensures that gross farm income grows more slowly than income generally (Timmer 1998:114–115).

Major Rural Groups in Poverty

The widespread assumption among development economists in the 1960s and 1970s that agrarian societies are characterized by roughly uniform poverty (Bruton 1965:100) is a myth. Rural society is highly differentiated, comprising a complex structure of rich landowners, peasants, sharecroppers, tenants, and laborers, in addition to artisans, traders, plantation workers, and those in firms that service the rural population. In most LDCs, it is the small landholders (with less than three hectares or seven acres), the near-landless, the landless, and the agricultural laborers who comprise the poor. According to the International Fund for Agricultural Development (IFAD), 52 percent of the LDC rural poor consist of smallholder farmer households (many of whom are in marginal areas where rainfall is inadequate, soils are fragile and vulnerable to erosion, and desertification is a serious risk), 24 percent of landless households, 7 percent of indigenous ethnic tribals, 6 percent of nomadic pastoralists, 4 percent of small and artisanal fishers, and 6 percent of internally displaced refugees. Sub-Saharan Africa has a disproportional share of smallholder poor and Latin America of landless poor (Jazairy, Alamgir, and Panuccio 1992:xviii–xix, 406–407).

Households headed by women, a category that overlaps with the other IFAD categories, comprise 12 percent of the rural poor and are often counted among the poorest of the poor.[2] As pointed out in Chapter 6, women have fewer opportunities for schooling, lack physical mobility, and often work more than fourteen hours a day with household chores, growing food crops, and working in the labor force at low wages (Jazairy, Alamgir, and Panuccio 1992:xviii–xix, 406–407).

No Asian, African, and Latin American country with a majority of the labor force in agriculture had more than three hectares of cropland per agricultural worker in 1990 save two, Afghanistan and Botswana. This is a far cry from the 40 hectares per agricultural worker in the United States in 1910, the time productivity reached a level where the number of farm workers began to fall (Tomich, Kilby, and Johnston 1995). Unsurprisingly, almost one-quarter of the LDC rural population is in poverty.

Yet, because rural income fluctuates with the season, annual weather variations, and the illness or death of major breadwinners, the static picture of poverty portrayed

[2] Polygamy, the taking of several wives, persists in many parts of sub-Saharan Africa. In Africa's "Polygamy belt," which stretches from Senegal in the west to Tanzania in the east, a substantial fraction of married women are in polygamous unions. In African societies where women do not own land, men control access to land; wives, in effect, pay their husband a share of farm output in exchange for cultivation rights. According to Hanan Jacoby (1995:938–971), in Côte d'Ivoire, the demand for wives increases with a man's wealth and the availability to him of farms on which the labor of wives can be productive.

by data at a given time is deceptive. In central India, 88 percent of the agricultural households were poor at least one year between 1975 and 1983, 44 percent for six or more years, and 19 percent poor every year, although the average poverty rate was 50 percent. Thus, transient poverty is substantial, and a substantial share of the population moves out of poverty (25 percent in the central Indian study) or from nonpoor to poor (16 percent in central India) in any given year (World Bank 1990i:34–36). Yet, central India's poverty fluctuated around a trend of declining rural poverty, resulting from agricultural growth and falling rural inequality (Singh 1990:26–35).

Rural Poverty by World Region

Poverty ($1/day) as a percentage of the LDC rural population was 24 percent in 1999 compared to a 15 percent urban poverty rate. The highest rural poverty rate was in sub-Saharan Africa, the region with the greatest rural–urban discrepancy in poverty rates. However, Asia, with five times the population of sub-Saharan Africa, has the largest number of rural poor. Indeed, India (35 percent poverty rate), China (18 percent poverty rate), Bangladesh, and Indonesia comprise 75 percent of the world's rural poor (World Bank 2004a:105–106). In 2004, India's ruling coalition, the Bharatiya Janata Party (BJP) and allies, which ran on a platform of "India shining" from expanding exports, information technology, and economic growth, lost the election to the Congress Party, strong in the rural areas, where peasants had failed to share in the economic gains. In China, urban–rural income disparities increased steadily from 1984 to 2002, becoming among the highest in Asia (Kahn 2004:A1).

Rural and Agricultural Development

Rural development is not the same as agricultural development. The agrarian community requires a full range of services such as schools, shops, banks, machinery dealers, and so on. Often rural areas use surplus agricultural labor, either seasonally or full-time, in industry. Thus, in Maoist China from 1958 to 1976, rural development was based on the people's commune, which provided economies of scale for social services and mobilized underemployed labor for manufacturing, constructing machine tools, building roads and dams, and digging irrigation chemicals. Since the rural reform in 1979, China's rural population has depended even more heavily on nonfarm incomes.

Incomes of farm households are highly correlated with the amount of nonfarm income (urban wages, remittances, and so forth), especially in Kenya and Nigeria. Indeed, household nonfarm income (much earned during the off-season) is the key to determining farm productivity and household incomes in Kenya. Farm families receiving urban wages bought land, hired farm labor, financed innovations, purchased farm inputs, and increased farm income. Most farm families without a regularly employed person earn no more than enough to satisfy the necessities of life. A study of northern Nigerian villages found that off-farm income (often involving capital or

skills) accounts for nearly 40 percent of the total income of the top quintile (fifth), but only 22–27 percent of income of the four bottom quintiles, whereas a western-central Nigerian survey indicated rural family income and capital per hectare correlated significantly with the percentage of income from nonfarm sources (Nafziger 1988:85; Collier and Lal 1986:249–250; Matlon 1981:323–372). Indeed, studies in Nigeria, South Korea, Taiwan, Thailand, and Sierra Leone indicate that because of rural nonfarm income, income inequality is not as high as inequality in land holdings would suggest (Tomich, Kilby, and Johnston 1995).

In India, off-farm income comprises 43 percent of farmers' income and about 50 percent of their labor. Nonfarm income is particularly important for the poor; 60 percent of the income of the bottom 40 percent of rural income earners is from off-farm income. Nonfarm income shares are important in other LDCs as well, comprising 40 percent of rural income in sub-Saharan Africa, 40 percent in Latin America, and 32 percent in Asia (Bruinsma 2003:226–231). In LDCs generally, many farmers are employed part-time, and other family members full-time, in off-farm enterprises. Farm income comprises only 57 percent of rural household income in African and Asian LDCs, with the ratio of farm income to nonfarm income to urban transfers 4:2:1 (Tomich, Kilby, and Johnston 1995; Singh 1990:91). Finally, some farmers actually live in urban areas. Thus, rural development includes more than agricultural income growth.

Rural–Urban Differentials in 19th-Century Europe and Present-Day LDCs

Contemporary rural–urban differentials in LDCs are much greater than they were in Europe in the 19th century. Output per person outside agriculture, as a multiple of the figure in agriculture, is eight in Africa and four in Asia and Latin America. It was two in Europe in the 19th century (Lipton 1977:435–437). However, discrepancies between urban and rural areas in income per person are not so high as nonagricultural–agricultural differences indicate because (1) urban agriculturists have a lower average income than others in urban areas; (2) rural nonagriculturists have a higher average income than others in rural areas; and (3) rural worker participation rates (which include proportionally more women and children) are high.

Agricultural Productivity in DCs and LDCs

How does agricultural productivity differ between LDCs and DCs? Agricultural output per worker in developing countries is one-twenty-fifth of that in developed countries and one-seventy-first of that in North America (the United States and Canada) (Table 7-1). Obviously, world agriculture is highly diverse. On the one hand is the highly efficient agriculture of the affluent countries where high levels of capital accumulation, technical knowledge, and worker productivity permit a small farm population to feed entire nations. In contrast is the low-productive agriculture in most Asian and African countries that barely sustains the population, including a minority

TABLE 7-1. Agricultural Output per Agricultural Worker – World and Regions, 1964–66 to 2000–02 (1979–81 world = 100)

Region	Agricultural output per agricultural worker								
	1964–66	1969–71	1974–76	1979–81	1984–86	1989–91	1991–93	1996–98	2000–02
Developed Countries	568	756	965	1277	1590	1920	2075	2096	2288
North America	2152	2678	3041	3521	4200	4997	5486	6090	6410
Western Europe	325	437	550	717	919	1121	1583	1648	1714
Oceania developed	3009	3483	3563	3764	4322	4700	5078	5156	5167
Japan and Asia developed	107	146	190	261	348	424	448	465	515
Transitional economies	177	239	289	321	420	513	507	420	463
Eastern Europe	191	230	308	392	498	563	529	461	509
Former Soviet Union	193	279	319	327	435	552	573	348	375
Developing countries	45	48	51	55	61	67	70	83	90
Africa	53	56	56	53	54	59	59	77	85
Latin America	202	221	243	278	290	328	335	394	469
Asia developing	35	38	40	44	51	57	60	76	82
Oceania developing	76	81	85	95	102	106	106	112	122
World	82	90	95	100	107	113	114	117	127

Note: The values of the world and regional aggregates of agricultural production are computed by using international commodity prices, which assigns a single "price" to each commodity. The values obtained are expressed in international dollars (as explained in Chapter 2) at the 1979–81 average prices.

Sources: Naiken 1994; FAO 2003a; World Bank 2003f:38–57, 123–131.

off the farm, at a subsistence level. The major factors raising LDC agricultural labor productivity are (1) new biological-chemical-mechanical inputs in production, (2) new technical and organizational knowledge from greater specialization, and (3) expanded markets for agricultural output (Tomich, Kilby, and Johnston:1995) as transportation costs fall.

The Evolution of LDC Agriculture

The evolution of agricultural production commonly occurs in three stages: (1) **peasant farming**, where the major concern is survival; (2) mixed farming; and (3) commercial farming.[3] If you have seen only the highly specialized, mechanized farms of the United States and Canada, it may be hard for you to visualize the subsistence agriculture that is the livelihood of most farmers in LDCs (and was for most farmers in North America in the late 18th and early 19th centuries). On the traditional peasant farm, output and consumption are almost identical, and the staple crop (usually wheat, barley, millet, sorghum, rice, or corn) is the chief source of food. Land and labor are the key production factors, and capital is small. Labor, except for multicropping irrigated agriculture, is underutilized except for peak seasons, such as planting and harvest. Cultivators – small owners, tenants, or sharecroppers – farm only as much land as their families can work without hired labor. And as indicated later when discussing land reform, the small family farm is frequently the most highly productive farm system.

For many this way of life is changing. An increasing number of peasants, pressured by a growing rural population per cultivated hectare, attracted by productivity gains from new capital and technology, and stirred by mass communications to higher consumer expectations, are producing crops for the market. Yet change does not take place so rapidly as the Western observer expects. Peasant resistance to change, which appears irrational to the Westerner, may in fact be prudent. The prime objective of the peasant is to maximize not income but his or her family's chance of survival.

Attempts to improve the situation of subsistence farmers by an indiscriminate introduction of cash crops often result in a greater risk to the survival of the peasant's family without any major increase in its average consumption. In parts of South Asia and Latin America, peasants who grow cash crops earn so little that at least three-quarters of their income is spent on food. In fact, commercial farming is often a more precarious operation than subsistence farming: prices fluctuate, necessary materials are scarce, and the weather remains unpredictable. Extension agents who introduce new varieties, cultivation, or management practices for trials on peasant farms should generally experiment with only a small part of a farmer's land, so that the innovations are not unduly risky and so the farmer can compare the results with traditional practices (Singh 1990:109).

For many, mixed or semisubsistence farming rather than highly specialized commercial farming is the first step away from subsistence agriculture. Production

[3] This discussion draws on Weitz (1971:6–28).

branches off into other enterprises besides the staple crop, such as legumes, fruits, vegetables, and animal husbandry. This change begins with improved productivity through technological advances, capital formation, or using resources underemployed in subsistence farming, and it varies depending on the particular conditions of the farm. For example, if the staple crop is grown only part of the year, new crops may be introduced in the slack season to use idle land and family labor, or more crops may be grown as a result of mixed cropping, irrigation, or using new seed varieties. Reducing labor requirements in the peak seasons by introducing simple labor-saving techniques can lead to new enterprises, such as cattle or poultry farming. Improved seeds, fertilizer, and irrigation may yield more food and free some land for cash crops. Thus, the farmer will have a marketable surplus for cash income. By spreading the workload more evenly throughout the year, diversified farming uses more of the available labor. Mixed farming also can provide more security to the operator. If one crop is destroyed by pests, disease, or natural calamity or sells at a low price, others may do better.

The specialized farm, the most advanced agricultural phase in a market economy, usually emphasizes cultivating one crop. Such a farm is capital intensive, uses advanced technology, and takes advantage of economies of scale and expanding national and international markets. The farmer no longer grows crops for the family but for the market.

Concentrating on one major crop appears quite risky. It seems to return the farm to the unbalanced work schedule and dependence on a single crop of the subsistence phase. However, the specialized farm uses labor-saving devices that decrease the workload at peak periods, so that the slack season can be used for other activities, such as plowing, fertilizing, maintaining equipment, and catching up with the latest literature. Furthermore, insurance policies, pesticides, market research, and irrigation can overcome some of the risks of one-crop farming. Also the income from specialized farming is so much higher than from other forms of farm production that it outweighs occasional losses from bad weather or price fluctuations.

Even when agricultural output per person grows and creates agriculturally related jobs, the transition from peasant to specialized farmer usually increases the number of landless laborers. Indeed, the change of many farm cultivators to hired workers during growing commercialization may be partly responsible for the increased rural poverty noted in South and Southeast Asia in the 1960s and 1970s, and reduced nutrition for workers in newly established plantations in Sri Lanka and large farms in Zimbabwe. And often women lose with commercialization, even when they were important decision makers before the change (Binswanger and von Braun 1993:171–180). Thomas P. Tomich, Peter Kilby, and Bruce F. Johnston (1995), however, argue that commercialization has only a small positive effect on calorie intake but does not worsen LDC household welfare.

By contrast, Yujiro Hayami (1998:304) thinks that “plantations have no significant advantage over peasants [for] crops for which centralized processing and marketing are not necessary.” Cocoa and coconuts are typical examples of a lack of large-scale economies. Peasants can grow and process these crops (“fermentation of cocoa and

the drying and smoking of coconuts to make copra . . .) in small lots with no large capital requirement beyond small indigenous tools and facilities."

Multinational Corporations and Contract Farming

With globalization, the commercial process has been internationalized. Since the 1990s, multinational corporations (MNCs) have invested, developed products (in collaboration with local researchers), transferred technology, trained producers, introduced contract farming, and provided financial assistance for farmers and agro-business people in LDCs.

The basis for MNC domination in today's global food economy started with market concentration in DCs. In the United States, four meat-packing firms control more than 80 percent of the beef supply. The wholesale and retail food distribution system in other OECD countries is also concentrated.

These large MNCs have expanded vertically by taking over the major operations along the food chain, fully integrating operations from the "farmgate to the dinner plate." Additionally, these companies have expanded horizontally by extending their reach into foreign markets. The three most advanced global food chain clusters are Cargill/Monsanto, ConAgra, and Novartis/ADM, whose headquarters are in the United States. ConAgra, for example, the second largest flour miller in North America, ranks fourth in corn milling, third in cattle feeding, second in slaughtering, third in pork processing, fourth in broiler production, and second in food processing, produces its own livestock feed, distributes processed food through major brands, and (with a subsidiary) sells seeds and agrochemicals around the world. Other clusters in the United States and Western countries have similar connections to links in the food chain, including exports of grains and soybeans (FAO 2003: 274).

The international coffee market changed substantially from the 1970s to the 1990s. In 1998, Philip Morris, Nestle, Sara Lee, P&G, and Tchibo accounted for 69 percent of world market shares in coffee roasting and processing. During the 1990s, coffee market concentration (that is, oligopolist power) grew and product differentiation increased. From the 1980s to the 1990s, the value added of producers fell from 20 to 13 percent and that retained in consuming countries (much to the coffee roasting and processing oligopoly) increased from 55 to 78 percent (FAO 2003:277).

Contracts between MNCs (and large LDC firms, such as Hindustan Lever, a food processor in north India) and farmers are crucial to company success. The benefits include superior technology (sometimes with minimal risk to the farmer), access to credit, and increased productivity and farmer income. But local farmers face problems if the company is unwilling to share risks, even when partly responsible for losses. In Thailand, a company that contracted raising chickens charged a levy on farmers to offset the possibility of high bird mortality. Farmers resented this, as they believed that the poor quality of chicks the company supplied was a cause of the problem. Farmers risk debt from production problems, poor technical advice, changing market conditions, or the company's failure to honor contracts (FAO 2003:278–279).

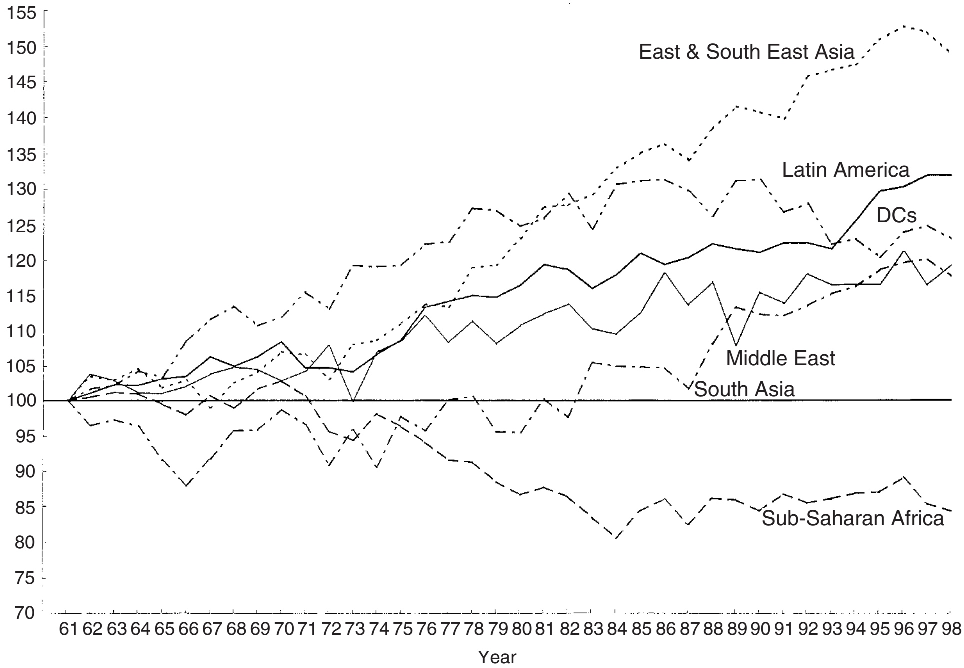


FIGURE 7-1. Growth in Food Production per Capita, 1960–98 (1961 = 100). Per capita food production grew by 22 percent in developed countries from 1962 to 1996, and by 14 percent in developing countries during the same period (22 percent in Latin America; 43 percent in East and Southeast Asia, excluding Japan and China; 20 percent in South Asia; 11 percent in the Middle East, and −12 percent in sub-Saharan Africa, the only world region where calorie intake, even if equally distributed, is below FAO's minimal nutritional standards). Although the graph shows year-to-year fluctuations, the figure for per capita food output for a given year t is an average of the figures for year $t-2$ through $t+2$. *Sources:* U.S. Department of Agriculture 1960–2000; FAO *Statistical Databases*, 1990–1999.

Growth of Average Food Production in Sub-Saharan Africa, Other LDCs, and DCs

Both agricultural and food outputs per worker in LDCs are fractions of the same measures in DCs. How does the *growth* of food production per capita in LDCs compare to that in DCs? Figure 7-1 indicates that from 1963 to 1996, food output per person in developing countries grew at an annual rate of 0.5 percent (−0.4 percent in sub-Saharan Africa and 0.7 percent in the rest of the developing world) and in developed countries at a rate of 0.6 percent per year. (Of course, because the vagaries of weather make farm production volatile, alarmists can always distort figures to show reduction in per capita grain production by beginning with a bumper crop, as in 1970 to 1971 in India, and ending with a poor harvest, as in 1972 to 1973 or 1979 to 1980. To avoid distortions caused by weather fluctuations, I use a five-year moving average in which food output in the year 1989, for instance, is computed as an average of the outputs of 1987 through 1991.)

FOOD DEFICITS AND INSECURITY IN SUB-SAHARAN AFRICA

Sub-Saharan Africa was the only LDC region where food output per capita fell from 1963 to 1996. Africa's daily calorie consumption per capita, 1997–99, 2,195 (compared to 2,115 in the early 1960s and 2,197 in the mid-1970s), was roughly about the same as the requirement by the Food and Agriculture Organization (FAO). Somalia, Burundi, Congo DR, Ethiopia, Eritrea (all less than 1,800 daily calories), Angola, Mozambique, Tanzania, Kenya, Zambia, Central Africa Republic, Madagascar (all less than 2,000 daily calories), 11 other African countries, 7 Asian countries, and Haiti had less than 2,200 daily calorie consumption per capita in 1997–99. Most of these countries plus virtually all of South Asia, a scattering of Latin American countries, and two central Asia countries from the former Soviet Union had at least 19 percent of the population undernourished in 1998–2000; 914 million people, 14 percent of the world's population, was undernourished in 2003. In the sub-Sahara, only a few southern and western African countries (South Africa, Botswana, Gabon, the Gambia, Ghana, Nigeria, Cameroon, Côte d'Ivoire, Togo, Benin, Mauritania, and Mali) and Mauritius, an island east of Madagascar, had an average daily consumption that exceeded the minimum required. Calorie consumption in all other LDC regions exceeded FAO requirements (Economic Commission for Africa 1983:9; U.N. Development Program 1994:118–120, 132–133, 207–208; FAO 2003:29–32; U.N. Development Program 2003:198–201).

The International Fund for Agricultural Development has developed the **food security index (FSI)**, which combines food production and consumption variables to measure national, composite food security. The FSI "combines measures of calorie availability (in relation to requirement), the growth of per capita daily energy supply, food production, food staples self-sufficiency, and variability of food production and consumption." Countries that have high food production potential or import capacity and that experience a low variability of production and consumption would have a high value of FSI (Jazairy, Alamgir, and Panuccio 1992:27, 398–399, 464–465).

Africa's FSI is low (and falling since the 1960s) not only because of large food deficits but also because of domestic output and foreign-exchange reserve fluctuations, as well as foreign food-aid reductions. Cereal consumption per capita has had a high coefficient of variation since 1965. In 1989, Economic Commission for Africa Executive Secretary Adebayo Adedeji (1989:2) spoke of "the humiliation it has brought to Africa in having to go round with the begging bowl for food aid." Relief agencies indicate millions of deaths from severe malnutrition in the 1990s in African countries where food trade was disrupted by domestic political conflict. In addition, the tens of millions of refugees annually fleeing civil wars, natural disasters, and political repression, such as in Sudan, Rwanda, Burundi, Angola, Liberia, Sierra Leone, Somalia, Mozambique, South Africa, Ethiopia, and Eritrea added to Africa's food shortages (Väyrynen 2000a:43–89).

Illustrative of the enormity of the sub-Sahara's difference from other LDCs is that while the sub-Sahara and India both produced 50 million tons of foodgrains in 1960, in 1988 India produced 150 million tons (after the Green Revolution and other farm technological improvements) and sub-Saharan Africa (with faster population growth)

was still stuck at little more than 50 million tons. India's yield per hectare increased by 2.4 percent yearly, whereas the Sub-Sahara's grew at a negligible annual rate of 0.1 percent. Thus, the sub-Sahara, which was on parity with India in 1960, produced only about one-third of Indian output in 1988 (Singer 1990:178–81) and about three-eighths in 2002 (FAO 2003). According to Table 7-1, the average North American agricultural worker, each of whom has far more land, capital, and technology, produces 75 times as much farm output as the average African.

"Why is only Africa hungry?" the *Kansas City Star* asks (2003:A20). Nic Maunder, specialist on Ethiopia and the Horn of Africa at the Famine Early Warning Center in Nairobi, Kenya, contends that people "overestimate the importance of climatic factors as causes of food insecurity." For him, war, bad governance, corruption and mismanagement, poor roads (hungry people live 160 kilometers or 100 miles from well-fed towns), and other infrastructure are important, "but the biggest factor is poverty." According to Maunder: "Food security is not merely about the food supply, but an individual's ability to buy it. Famines almost never occur in cities or large towns, where incomes don't depend on agriculture." Ethiopia has consistent bumper crops in the west "while crop failures in the east bring food shortages every four to five years that usually leave 5 million to 10 million people hungry." People in the east, continually on the edge of destitution, cannot afford to buy food from the other side of the country. "Ethiopia, like most African countries, has a poor road system, [meaning] that it is sometimes cheaper to ship food from the United States than to truck it across the country" (Kansas City Star 2003:A20). Thus famines can occur in countries that have plenty of food but where people lack access because of poverty or distance to food-surplus areas (see Chapter 8).

POOR AGRICULTURAL POLICIES AND INSTITUTIONAL FAILURES IN SUB-SAHARAN AFRICA

Africa's deteriorating food position began before the droughts in the Sahel, Sudan, and Ethiopia during the last decades of the 20th century. Although the roots of Africa's food crisis can be traced back to precolonialism and colonialism, the crisis has continued after colonialism with African governments' neglect of agriculture. Hans Binswanger and Robert Townsend (2000:1076) attribute the crisis to centuries of poor policies and institutional failures. This began with the precolonial period, viz., 1650 to 1850, when the slave trade was extremely destructive to political and economic life, especially capital accumulation. Colonial policy contributed further to today's agricultural underdevelopment. (1) Africans were systematically excluded from participating in colonial development schemes and producing export crops and improved cattle. British agricultural policy in Eastern Africa benefited European settlers and ignored and discriminated against African farmers; in Kenya, this meant prohibiting Africans from growing coffee until 1933. (2) Colonial governments compelled farmers to grow selected crops and work to maintain roads. (3) Colonialism often changed traditional land tenure systems from communal or clan to individual control. This created greater inequalities from new classes of affluent farmers and ranchers, and less secure tenants, sharecroppers, and landless workers.

(4) Colonialists failed to train African agricultural scientists and managers. (5) Research and development concentrated on export crops, plantations, and land settlement schemes, neglecting food production and small farmers and herders. (6) Europeans reaped most of the gains from colonial land grants and export surpluses from agriculture (Eicher and Baker 1982:20–23; Ghai and Radwan 1983:16–21).

Chapter 4 mentioned the numerous predatory postcolonial rulers in Africa ruling through coercion, material inducement, and personality politics, degrading the economy and bureaucracy. Many postcolonial governments, although lacking a capable civil service, established high tariffs, heavy taxation, overregulation (with rules and policies unpredictable), exchange rates biased against farm exports, high interest rates, and highly centralized fiscal and institutional systems for agricultural development, inhibiting local initiative. State control of commodity marketing boards inhibited processing and exports, as input delivery and crop payments by the boards were unreliable.

In addition, Africa was plagued by poor resource endowment and land quality, low density, increasing transport and transactions costs (especially with landlockedness), little specialization, few economies of scale, a lack of competitive markets, the absence of credit markets, a short growing season for rainfed farming, the high risk of drought, and endemic livestock and human diseases (malaria, tuberculosis, and, more recently, the AIDS epidemic). Population losses in the farm labor force have reduced hectares cultivated and crop yields, and shifted cultivation from cash to subsistence crops. AIDS reduces farm workers in the peak earning years, undermines incentives and savings, and leads to the sale of assets under distress (Binswanger and Townsend 2000:1076–1084; Lampley, Wigley, Carr, and Collymore 2002:20). Moreover, as indicated later in this chapter, the contemporary neglect of Africa's agriculture results partly from the political advantage to state leaders to intervene in the market to improve prices and incomes of urban classes relative to farmers.

These barriers and institutional factors prevented Africa, unlike Asia, from enjoying a Green Revolution, which requires a well-developed infrastructure and good governance (see Chapter 8). We can hope that recent agricultural structural reforms, policy and institutional reform, and macroeconomic stabilization have increased Africa's flexibility and competitiveness.

Food in India and China

During the Chinese Cultural Revolution from 1966 to 1976, some Western economists accepted the official claim that the country had no malnutrition. The French economist Al Imfeld (1976:157) maintained that "in contrast to India, China has eliminated hunger." The best evidence indicates that food production per capita in China fell more than 12 percent between the 1930s and the late 1970s. Although growth in food production per capita of the world's most populated country, China, from 1952 to 1984, was slightly faster than that of the second most populated country, neighboring India, breaking down the analysis into the pre-1977 to 1979 period, when China had primarily cooperative and collective farming, and the period after

the 1979 agricultural reforms, is more revealing. India's annual growth in food output per person, from 1954 to 1977, was 0.4 percent compared to China's 0.3 percent (Nafziger 1985:366–392; Brown 1995:29; Nafziger 1997:183; U.S. Department of Agriculture 1986; U.S. Department of Agriculture 1999). (The five-year moving average avoids much influence from the abnormal growth just following China's post-1949 war rehabilitation and India's recovery from disruption caused by the 1947 Indian–Pakistani partition or following China's reforms and India's post-1978 liberalization.)

Yet, because China's foodgrain output per person in the early 1950s was roughly 25–30 percent higher than India's, China's average *level* of food output per person remained higher than India's through the 1980s. Furthermore, because income inequalities were less in China than India, the percentage of the population that was malnourished was lower than in India. Nevertheless, China's Communist Party Central Committee admitted that in 1977, about 100 million people, or more than one-tenth of China's population, did not have enough to eat (Perkins 1969; Howe 1978:xxiii, 180–184; Eberstadt 1979:33–46; Barnett 1981:305), thus contradicting Imfeld's contention.

The Stanford economist John G. Gurley (1976:134) argues that "the Chinese have what is in effect an insurance policy against pestilence, famine, and other disasters." But although China normally has had a lower malnutrition rate and distributes food more equally than does India, China has been more subject to famine than is India.

Amartya K. Sen emphasizes that having enough to eat does not depend on merely egalitarian income distribution or low poverty rates but on society's system of entitlement. **Entitlement** refers to the set of alternative commodity bundles that a person can command in a society using the totality of rights and opportunities that he or she possesses. An entitlement helps people acquire capabilities (like being well nourished). In a market economy, the entitlement limit is based on ownership of factors of production and exchange possibilities (through trade or a shift in production possibilities). For most people, entitlement depends on the ability to find a job, the wage rate, and the prices of commodities bought. In a welfare or socialist economy, entitlement also depends on what families can obtain from the state through the established system of command. A hungry, destitute person will be *entitled* to something to eat, not by society's low Gini concentration and a high food output per capita, but by a relief system offering free food. Thus, in 1974, thousands of people died in Bangladesh despite its low inequality, because floods reduced rural employment along with output, and inflation cut rural laborers' purchasing power.

Sen argues that food is "purchased" with political pressure as well as income. Accordingly, one-third of the Indian population goes to bed hungry every night and leads a life ravaged by regular deprivation. India's social system takes nonacute endemic hunger in stride; there are neither headlines nor riots. But although India's politicians do not provide entitlements for chronic or endemic malnutrition, they do so for potential severe famine through food imports, redistribution, and relief. In Maoist China, the situation was almost the opposite. Its political commitment ensured lower regular malnutrition through more equal access to means of

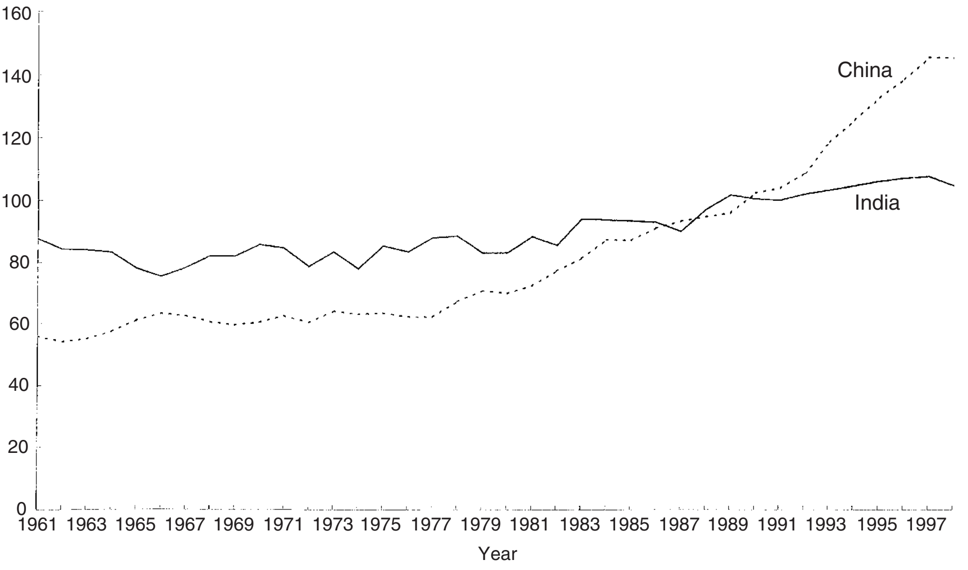


FIGURE 7-2. Growth in Food Production per Capita, China and India, 1961–1998 (1981–1991 = 100). *Source:* FAO *Statistical Databases*.

livelihood and state-provided entitlement to basic needs of food, clothing, and shelter. In a normal year, China's poor were much better fed than India's. Yet, if there were a political and economic crisis that confused the regime so that it pursued disastrous policies with confident dogmatism, then it could not be forced to change its policies by crusading newspapers or effective political opposition pressure, as in India.[4]

Famines result from a failure of the entitlement system. Sen, using Beijing University figures, calculates an extra mortality of 14–16 million people from famine in China from 1959 to 1961 (see Figure 7-2), greater in absolute or relative terms than the three million extra mortality in India's largest 20th-century famine, the Great Bengal Famine of 1943. So although China was more successful than India before 1977 to 1979 in eliminating regular malnutrition, China has had more famines than India (Sen 1983a:757–60; Sen 1983b). (For further discussion of Sen's entitlement theory of famine, see Bowbrick 1986:105–124; Sen 1986:125–132; Bowbrick 1987:5–9; Sen 1987:10–14; Devereux 1988:270–282; Kula 1988:112–116.)

China's per-capita food production dropped sharply during the 1959 to 1961 famine (1960's figure was 25 percent below 1952's), resulting in widespread malnutrition. The cause of this decline was not only bad weather, floods, and drought but also poor quality work during the emphasis on collective labor-intensive projects during the Great Leap Forward (GLF) from 1958 to 1960. Reservoir construction work destroyed soil, rivers, and existing irrigation systems. Reservoir and water conservation work raised underground water levels, led to alkalized, salinized, and water-logged soil, halted stream and river flows, left irrigation channels unfinished,

[4] Sen (1999:16) notes a relationship between authoritarianism and famine, as suggested by the leading famine countries being North Korea, Sudan, and Ethiopia.

and failed to provide for drainage. Moreover, GLF water projects removed land from cultivation. Furthermore, Chinese authorities discriminated against rural populations in grain procurement. Yet the GLF political pressure for agricultural success made local officials unwilling to report food shortages (Kung and Lin 2003:51–74; Prybyla 1970:264–269; Barnett 1981:271, 302; Lardy 1983:152–153; World Bank 1986:104–106).

In reforms beginning in 1979, China decontrolled farm prices for farm commodities, encouraged direct sale by peasants to the market, and instituted a household responsibility system, which allowed farmers more freedom to choose both farm and nonfarm activities. From 1977 to 1984, even India's 3.0-percent annual growth in food output per capita under a modest post-1978 liberalization was outstripped by China's 4.6-percent growth, which was not so rapid as gains in oilseed, livestock, and cotton output. Indeed, China reversed its pre-1979 dependence on imported grains, exporting corn, other coarse grains, and soybeans. These remarkable gains were achieved with few increased farm inputs (see Chapter 19). Even after 1984, longer-term leasing contracts, subleasing of land by peasants, free-market pricing for most farm products, and greater nonfarm options for the rural population was accompanied by rapid although decelerated growth in foodgrain output per person:3.2 percent yearly, 1984–1998, for China, compared to 1.2 percent per year in India (see Figure 7-2). China's price decontrol of food inputs and outputs, although only partial, reinforces the World Bank's emphasis in the Berg report (discussed later in this chapter) of "getting prices right."

LDC Food Deficits

The LDC **foodgrain (cereals) deficit**, 9.3 percent in 1997, is expected to be 12.1 percent of food consumption in LDCs by 2020 (Table 7-2). Through trade, the United States and the (pre-2004) European Union 15, together with Canada, Australia, and New Zealand (in "Other" in Table 7-2), provide the lion's share of the surpluses for the developing world. All LDC regions show large and increasing deficits, except for Latin America, which is expected to come close to a balance between consumption and production by 2020. The two largest deficits as a proportion of consumption are West Asia/North Africa (the Middle East) and sub-Saharan Africa. The major developing countries with food deficits are discussed in Chapter 8, which examines the population-food balance in more detail. Food importers, such as Britain, Germany, and Japan, generate enough industrial surplus to maintain a high level of nutrition.

An American Association for the Advancement of Science symposium argues that annual food production is enough to feed everyone on earth adequately if distribution were more equal. However, although *intra*-regional distribution would be adequate for Asia and Latin America, sub-Saharan Africa's caloric intake, if equally distributed, would not exceed minimal nutritional standards (FAO 2003:29–32). Chapter 8's discussion of the food-population balance and the previous section on Sino-Indian comparisons suggest that local food shortages are due not so much to inadequate world production as to deficiencies in food distribution. Although worldwide food output per capita should grow in the first two decades of the 21st century, inequality

TABLE 7-2. Cereals Consumption and Deficits, 1997 and 2020 (million metric tons and percentages)

	1997			2020		
Region/country	Cereals consumption (m.m.t)	Cereals deficit (cereals consumption minus production) (m.m.t)	Cereals deficit/cereals consumption (%)	Cereals consumption (m.m.t)	Cereals deficit (cereals consumption minus production) (m.m.t)	Cereals deficit/cereals consumption (%)
Developed countries	725	(104)	(14.3)	822	(202)	(24.6)
United States	244	(94)	(38.5)	305	(119)	(39.0)
European Union 15	173	(31)	(17.9)	183	(30)	(16.4)
Former Soviet Union	131	7	5.3	136	(8)	(5.9)
Other	177	14	7.9	198	(45)	(22.7)
Developing countries	1,118	104	9.3	1,674	202	12.1
Latin America	138	14	10.1	211	4	1.9
Sub-Saharan Africa	83	14	16.9	156	27	17.3
West Asia/North Africa	129	45	34.9	196	74	37.8
South Asia	238	3	1.3	353	22	6.2
Southeast & East Asia	530	28	5.3	758	75	9.9
World	1,843	0	0	2,496	0	0

Note: ( ) indicates surplus.

Source: Rosegrant, Paisner, Meijer, and Witcover 2001:184.

in food distribution may mean that some people in LDCs will be undernourished. This could mean a shortfall in the Millennium Development Goal (Chapter 2) to reduce world hunger to 8–9 percent (using World Bank estimation methods) by 2015. Adequate nourishment is not only required under the Universal Declaration of Human Rights and a key for attaining Millennium Development Goals but a part of increasing the productivity of the workforce (Chapter 9).

Still, the projections in Table 7-2, although consistent with the bleakness of other food data, especially on Africa, should not obscure the fact that the crises in urban food supply, overall food production, and external imbalances are somewhat distinct. With rapid urbanization and changes in urban diets and the importation of much of urban food supply, we can expect LDC food imports to rise from 2005 to 2015, regardless of food output trends. African farmers are largely self-sufficient in basic calories, but may not be able to produce surplus for sale because of a lack of technology and market failure.

Export crops drive cash income and capacity to import. Consider Somalia, which had Africa's lowest daily calorie consumption per capita, 1997–99 (FAO 2003:31). Peter Little (2003:135) indicates that "there is a clear and positive correlation between livestock exports and food imports in Somalia." Saudi Arabia's ban on Somalia livestock exports, 1997–99 and 2000, drastically reduced income and thus food imports and consumption (ibid., pp. 33, 135).

The fact that grain imports are 25–30 percent of grain consumed in Africa does not mean that imported cereals sustained one-quarter of the population. Rising cereal imports, helped by falling food import prices, means increased cereals consumed in urban areas (rice and wheat), and a shift in Madagascar, Southern Nigeria, Ghana, and Uganda from coarse grains (sorghum and millet), roots, and tubers (Jamal 1988:657–679; FAO 2003:107–111). In addition, LDCs' meat consumption is expected to double from 1984–86 to 2015, whereas meat consumption and imports for sub-Saharan Africa are also expected to increase (FAO 2003:85–89).

Food Output and Demand Growth

Agriculturists, who agree on the rising global trend in foodgrain output per person from the early 1950s through the 1980s, noticed a fall in global average grain production after 1990. The debate between Worldwatch Institute's neo-Malthusians (Brown 1994:26–27; Halweil 2003:28–29) and their critics, such as Tim Dyson (1994:397–411), is whether this adverse trend will deepen in the 21st century, leading to massive famines. The controversy, discussed in connection with Figure 8-8, examines the sustainability of the contemporary global agricultural system, including regional trends, population growth, environmental and resource limitations, and agricultural technological gains (Crosson 1994:105–119).

Total world food production, which grew between the 1950s and the early 21st century, is expected to continue growing during subsequent decades in both LDCs and DCs. Meanwhile, food demand per capita will continue to rise, although not so rapidly as increases in GNP.

TABLE 7-3. Income Elasticities in Developing Countries for Selected Commodities[a]

Item	Income elasticity
Rice	0.01–0.30
Wheat	0.04–0.98
Vegetables	0.10–0.92
Vegetable oils	0.50–1.81
Beverages	0.74
Cocoa	0.75
Fish	0.61–1.50
Shrimp	1.25
Pork	0.50–0.97
Beef	0.75–1.85
Eggs	0.80–1.20
Poultry	0.40–2.20
Milk	1.50–2.50
Fruit	1.22–2.50
Sugar	1.50–2.00
Manufactures	0.74–3.38

[a] The percentage increase in quantity demanded as a result of a 1-percent increase in income. The estimates are based on studies of developing countries. The range of estimates reflects differences in per capita income levels among countries.

Source: World Bank 1994f:39.

The growth in food demand or

$$\dot{D} = \dot{P} + \alpha\dot{E} \tag{7-1}$$

where $\dot{P}$ is population growth, α the income elasticity of demand for food, (change in the quantity of food demanded per capita/quantity of food demanded per capita)/(change in per-capita income/per-capita income), and $\dot{E}$ per-capita income growth, all expressed in yearly figures. In empirical studies, estimates for α vary widely (from 4 percent to 85 percent), depending on location, type of survey, and income levels. Table 7-3 indicates the range of elasticities in LDCs for selected commodities. For the International Food Policy Research Institute economist Harold Alderman (1993:118–119), α averages 0.48 for LDC average incomes. If the annual figures are 1.3 percent for population growth, 2.08 percent for income per-capita growth, and 0.48 for α, than food demand growth is 1.3 percent + 1 percent or 2.3 percent yearly.

Fish, Meat, and Grains

Foodgrain output figures omit fish, an important source of high-quality protein throughout the world and one-fourth of the animal protein in the developing world.

LDCs ate a majority of the world's catch of 97 million tons in 1999, which was a fivefold increase over 45 years and an increase of more than a third since 1990. World fish tonnage compared to 47 tons of beef, 61 tons of pork, and 39 tons of poultry. China, the world's largest fish producer, dominated growth in the 1990s. China's growth overshadowed developments in the rest of the world, where consumption per person fell, 1990–99. Outside China, this fall results from an overuse of a common property resource, the earth's bodies of water (Chapter 13). Africa produced only 3 million tons in 1999 (FAO 2003:195–206; Iowa State University 1999; World Resources Institute 2000).

Factors Contributing to Low Income and Poverty in Rural Areas

Average income in rural areas is substantially less than in urban areas in LDCs. Rural inequality is greater than urban inequality in Latin America but less in the rest of the developing world (Jain 1975; World Bank 2003h:57–66). Not surprisingly in LDCs as a whole, there are higher poverty rates in rural areas than in cities. This section discusses why this is so.

LACK OF RESOURCES AND TECHNOLOGY

Agricultural income and productivity in LDCs are low because of minimal capital per worker and inadequate technology. Small farm *owners* receive limited credit and tenants, sharecroppers, and landless laborers receive almost none. Although large parts of Asia, especially large farmers, benefited from the inputs into high-yielding varieties (HYVs) associated with the **Green Revolution** (Chapter 8), this has bypassed most of African agriculture, which lacks a basic infrastructure. In most of Africa, there is little research and development to improve technology appropriate for small farmers, partly because they lack effective demand and political power.

CONCENTRATION OF CAPITAL, LAND, AND TECHNOLOGY

Agricultural technology and capital are often concentrated among large farmers, who have more access to markets and inputs, outbidding many small cultivators, who may be marginalized and sometimes compelled to work for a wage. Many of the poor are smallholder farmers, including a substantial share of women, who work long hours and are already deeply involved in agricultural production, but lack the productive resources (fertilizer, better seeds, equipment, tools, land, and skills) and new technology to escape from their poverty trap. Although still less than urban inequality in Afro-Asia, rural income inequality has increased since 1970 (Jain 1975; International Labour Office 1979; Jazairy, Alamgir, and Panuccio 1992:xix–xx, 105–106; Worldwatch 2003:17–24).

Land holdings, frequently a colonial legacy, are severely concentrated in many LDCs (see Chapter 6). This is especially true in Latin America, where the average farm size is over 80 hectares or 200 acres (20 times larger than in Afro-Asia) (Table 7-4), and size dispersion is substantial (Gini coefficient = 0.84, if you include the holding of landless as zero) (Squire 1981:156; Repetto 1987:14). In Brazil, a small fraction of

TABLE 7-4. Distribution of Agricultural Landholding by Percentile Groups of Households

		Groups of Households					
Country	**Year**	**Lowest (first) quintile (twenty percent)**	**Second quintile**	**Third quintile**	**Fourth quintile**	**Fifth quintile**	**Gini coefficient**
Bangladesh	1983–1984	2.3	5.4	12.5	23.6	56.2	0.50
Bolivia	1978	5.8	5.8	5.8	9.3	73.3	0.55
Botswana	1971	6.9	6.9	6.9	13.4	65.9	0.50
Brazil	1980	0.3	1.0	3.1	7.2	88.4	0.75
Cameroon	1984	3.6	9.3	15.0	21.6	50.5	0.42
Chile	1987	2.8	2.8	2.8	15.5	76.1	0.64
Colombia	1983–1984	0.4	1.3	3.8	12.6	81.9	0.70
Costa Rica	1984	0.8	0.8	7.1	12.1	79.2	0.67
Dominican Republic	1981	1.2	3.4	3.4	3.4	88.6	0.70
Ecuador	1987	1.0	1.6	4.2	9.6	83.6	0.69
Egypt, Arab Republic	1984	11.2	11.2	11.2	11.2	55.2	0.35
El Salvador	1985	5.1	5.1	5.1	10.6	74.1	0.57
Ethiopia	1984	7.7	15.1	18.3	23.9	35.0	0.25
Ghana	1984	7.8	7.8	7.8	18.6	58.0	0.44
Guaternala	1979	0.8	1.6	3.3	4.2	90.1	0.72
Haiti	1971	0.8	0.8	0.9	30.0	67.5	0.65
Honduras	1980–1981	2.9	2.9	3.8	11.4	79.0	0.64
India	1976–1977	4.1	4.1	6.3	20.3	65.2	0.55
Indonesia	1983	3.0	6.2	11.3	24.0	55.5	0.49
Iraq	1982	2.4	16.1	18.1	18.1	45.3	0.35

Ivory Coast	1988	5.9	9.5	17.6	23.6	43.4	0.36
Jordan	1983	1.3	4.4	9.0	20.0	65.3	0.57
Korea, Republic of	1980	5.7	12.7	16.0	25.0	40.6	0.33
Malawi	1980–1981	5.2	11.1	15.5	24.0	44.2	0.36
Malaysia	1976	3.1	6.1	11.9	16.8	62.1	0.51
Mexico	1970	5.1	5.1	5.1	8.0	76.7	0.58
Morocco	1981–1982	6.8	6.8	6.8	21.6	58.0	0.47
Myanmar (Burma)	1989–1990	4.7	7.4	12.3	24.2	51.4	0.44
Nepal	1982	2.6	2.6	7.7	19.8	67.3	0.59
Niger	1980	5.9	11.7	18.6	28.9	34.9	0.30
Nigeria	1973–1974	1.6	6.8	24.2	32.4	35.0	0.37
Pakistan	1980	2.8	7.2	11.5	19.3	59.2	0.50
Panama	1981	0.1	0.4	2.2	9.3	88.0	0.74
Peru	1984[a]	3.3	3.3	3.3	17.1	73.0	0.61
Philippines	1981	3.2	8.1	11.6	20.4	56.7	0.48
Sri Lanka	1982	2.8	2.8	8.7	18.3	67.4	0.58
Syrian, Arab Republic	1979	1.9	3.9	7.2	18.6	68.4	0.59
Thailand	1978	4.0	8.3	16.3	24.2	47.2	0.41
Tunisia	1980	3.0	3.0	9.4	16.2	68.4	0.58
Turkey	1980	2.1	6.1	11.4	21.3	59.1	0.52
Uganda	1984[b]	4.5	4.5	4.5	12.0	74.5	0.59
Zambia	1981	18.0	18.0	18.0	18.0	28.0	0.08

[a] Private holdings.
[b] Based on four regions only (Busoga, Kigezi, Masaka, and Teso).

Sources: Jazairy, Alamgir, and Panuccio 1992:416–417.

TABLE 7-5. ***Minifundios*, Medium-sized Farms, and *Latifundios* in the Agrarian Structure of Selected Latin American Countries, 1966**

	Minifundios[a]		Medium-sized and family farms[b]		Latifundios[c]	
	Percent of farms	Percent of occupied land	Percent of farms	Percent of occupied land	Percent of farms	Percent of occupied land
Argentina	43.2	3.4	56.8	59.7	0.8	36.9
Brazil	22.5	0.5	72.8	40.0	4.7	59.5
Colombia	64.0	4.9	34.7	45.6	1.3	49.5
Chile	36.9	0.2	56.2	18.5	6.9	81.3
Ecuador	89.9	16.6	9.7	38.3	0.4	45.1
Guatemala	88.4	14.3	11.5	44.9	0.1	40.8
Peru	88.0	7.4	10.9	10.2	1.1	82.4

[a] Employ less than two people.
[b] Family farms employ two to four people and medium-sized farms four to twelve workers.
[c] Employ more than 12 people.
Source: Furtado 1970:54–55.

landholders (16 percent) commands 87 percent of agricultural land. Land inequality is greater than data indicate because many small holders sharecrop or lease their holdings, and many rural have no land at all (Repetto 1987:13–14). Since the colonial period more than 100 years ago, most of Latin America has been characterized by **latifundios**, large land-grant estates owned by the few, and **minifundios**, small poor holdings that rarely provide adequate employment for a family (see Table 7-5). To obtain a subsistence income, holders of *minifundios* generally work as seasonal labor on the *latifundios*. And of course, these large estates, characterized by extensive cultivation, high capital intensity, and much unused land, have a higher output per agricultural worker.

In the last few decades, the many *latifundios* have increased their capitalization and levels of technology. Moreover, in some Latin American countries, a well-capitalized medium-scale sector has emerged. Yet, despite these changes and a smattering of land redistribution, Latin American still has a high degree of land concentration (Jazairy, Alamgir, and Panuccio 1992:109–113).

LOW EDUCATIONAL AND SKILL LEVELS

Average incomes in urban areas are higher than in rural areas, where skill levels and demands are lower. Years of schooling, a major indicator of skill and productivity (see Chapter 10), are fewer in rural than in urban areas. For example, in India the city-born child has twice the chance of receiving a primary or secondary education as the one born in a rural community and eight times the chance of receiving a university education. More and better quality schools are available to city children than to rural children. In addition, much rural schooling is irrelevant to its community's economic needs. Some economists even question how much rural areas benefit from a child's

education, as the most able and educated young people usually emigrate to the cities (Lipton 1977:259–260, 446).

RURAL–URBAN MIGRATION

Attracted by the prospect of better-paying jobs in urban areas, rural emigrants tend to have education, skill, and income that are higher than average in the rural areas. Poorer villagers are often at a disadvantage in migrating: (1) They simply cannot afford to migrate – acquiring job information, emigrating, and searching for work are expensive propositions, especially if they are financed at the high interest rates charged by the village money lender. And, of course, emigrés must subsist as they wait for their first paychecks. (2) Their families find it more difficult to release them from work. (3) They are not so well educated as most other villagers. Many urban employers use education to screen job applicants, even for unskilled work (see Chapter 10). Even when the poorer villagers surmount these obstacles and move to the city, they frequently do not stay. Poverty forces them back to the village. The jobless, ill, pregnant, and elderly eventually return to relatives in the rural areas, eroding average incomes already reduced by the large economic burden from high rural birth rates (Lipton 1977:66, 149–149, 231–235).

POLICIES OF URBAN BIAS

The British economist Michael Lipton argues that the most significant class conflicts and income discrepancies are not between labor and capital, as Karl Marx contended, but between rural and urban classes. Despite development plans that proclaim agriculture as the highest priority sector, and political rhetoric that stresses the needs of the poor rural masses, government allocates most of its resources to cities, a policy of **urban bias**. Planners and politicians in LDCs are more likely to respond to the concerns of the more powerful, organized, and articulate urban dwellers. Thus, farm land is diverted from growing millet and beans for hungry villagers to produce meat and milk for urban middle and upper classes or to grow cocoa, coffee, tea, sugar, cotton, and jute for export. Scarce capital is spent on highways and steel mills instead of on water pumps, tube wells, and other equipment essential for growing food. High-cost administrative and management talent is used to design office buildings and sports stadiums rather than village wells and agricultural extension services.

Urban bias may take these forms:

1. Policies that raise industrial prices relative to the prices of farm goods. Government may set price ceilings on food and guarantee minimum prices for industrial goods. High taxes and low prices force agriculture to transfer income and capital to industry and social infrastructure. The most frequently cited model for such policies is the Soviet Union of the 1930s, which used low prices, sales taxes, and government monopsony purchases to divert the surplus from agriculture into heavy-industry output and investment growth unmatched by any Western country. But in the 1970s direct and indirect taxation of agriculture as a percentage of agricultural value added exceeded 40 percent in Ghana, with

62 percent; Côte d'Ivoire, with 51 percent, Egypt, with 49 percent, Pakistan, with 48 percent; Sri Lanka, with 44 percent; and Thailand, with 43 percent (World Bank 1990:58–59; Lipton 1977).

2. Concentration of investment in industry. Although over half of the LDC population is in agriculture, only about 20 percent of investment is in agriculture.
3. Tax incentives and subsidies to pioneering firms in industry, but not in agriculture.
4. Setting below-market prices for foreign currency, which reduces domestic currency receipts from agricultural exports. This policy lowers the price of capital goods, other foreign inputs, and food imports, which benefits urban areas, especially large industrial establishments with privileged access to import licenses. In Pakistan, such a foreign exchange policy coupled with industrial price guarantees resulted in the transfer of about 70 percent of agricultural savings and over 24 percent of its gross product to the nonagricultural sector in 1964 and 1965.
5. Tariff and quota protection for industry, contributing to higher fertilizer, seed, equipment, materials, and consumer prices for farmers.
6. Spending more for education, training, housing, plumbing, nutrition, medical care, and transport in urban areas than in rural areas (see Chapter 9) (World Bank 1990:58–59; Griffin and Khan 1972). Thus, life expectancy, an indicator of the quality of the health care system, varies widely among regions. Buenos Aires had a 1985 life expectancy of 75 years; the rest of Argentina, 69; the poor rural areas, 63; and Argentina as a whole, 70. Algiers's life expectancy is 77; the rest of Algeria, 69; the poor rural areas, 66; and Algeria generally, 69.

Maurice Schiff and Alberto Valdes from the World Bank label this bias "The Plundering of Agriculture in Developing Countries" (1998:226–233). Using a sample of countries from Asia, Africa, and Latin America, 1960–84, Schiff and Valdes find that the average effect of industrial protection and a price for foreign currency below market depresses agriculture's domestic terms of trade (agricultural price/industrial price) 22 percent. The total effect, including the previous plus agricultural price controls, export taxes or quotas, and import subsidies or taxes, is a 30 percent reduction in agriculture's terms of trade (ibid., pp. 227–228).

Although recent changes have diminished urban bias, DC and (world) agricultural overproduction in many commodities have reduced the benefits to the LDC rural poor. According to the World Bank (2004a:103):

> In the last decade, developing countries shifted from taxing agriculture to protecting it. Import restrictions on manufactured products have declined dramatically, exchange rates have been devalued, multiple-exchange rate systems penalizing agriculture have been abandoned, and export taxes have effectively disappeared. . . . Meanwhile, reforms in most industrial countries, including many of the successful middle-income countries, have been modest. . . . The result of these policies have been overproduction and price declines in many commodities, reducing opportunities for many developing countries to expand exports and penalizing the poor.

SEASONAL POVERTY AND HUNGER

Ironically, *moderate* undernourishment is higher in rural than in urban areas, as it is more likely to result from inadequate income than food shortages. However, Food and Agriculture Organization (FAO) studies of several LDCs indicate that, because of greater access to subsistence food production, the percentage of the population suffering *severe* malnourishment in rural areas is lower than in urban areas (FAO 1977:29–46).

Yet there is substantial hunger in rural areas. A "hungry season" before the beginning of a new harvest is widespread in many LDCs, especially in West Africa. Poor rural households are caught in a poverty trap in which selling labor and obtaining credit at high interest rates to ensure survival through the hungry season result in less income and high interest payments in future years. The poverty trap is circular. Initially farmers sacrifice self-sufficiency to produce cash crops. Accordingly, they no longer grow early maturing crops that would fill the hunger gap between harvests. Poor farm families are also more vulnerable than previously as a result of individualized consumption replacing community or clan sharing. Furthermore, poor farm families cannot afford to purchase food just before harvests, when cash resources are lowest and prices are highest. At this juncture, many poor farmers neglect their own farms and sell their labor to richer farmers. They accept a lower income from their own farm to guarantee short-term survival. Reduced calorie and protein consumption during a period of more work leads to weight loss and greater chances of contracting diseases. The situation may become worse each year (Newman, Ouedraogo, and Norman 1979:241–63; Byerlee, Eicher, and Norman 1982).

VULNERABILITY OF THE RURAL POOR

Peasants and the rural poor, who face poor infrastructure, inequitable policies, high disease rates, inadequate support systems, and market failure, are highly vulnerable. Thus, they are "highly risk averse and reluctant to engage in the high-risk, high-return activities that could lift them out of poverty. One slip could send them deeper into poverty" (World Bank 2001i:138). In rural Ethiopia, three-fourths of the households suffered a harvest failure over a 20-year period, contributing to significant fluctuations in farm income. Farmers in south Indian villages also faced large fluctuations in income, with the coefficient of variation (deviation of a variable from its mean) ranging from 0.37 to 1.01. LDC farm families manage risk by diversifying crops, seeking nonfarm income, sharecropping, building social networks, or saving for a "rainy day" (ibid., pp. 138–141). Purchasing insurance against major output and price risks, however, is much more difficult (Stiglitz 2000:336).

Policies to Increase Rural Income and Reduce Poverty

This section focuses on increasing average rural incomes and reducing the percentage of the rural population in poverty by improving income distribution.

AGRARIAN REFORM AND LAND REDISTRIBUTION

Although land is the most important asset that families in most societies have or aspire to having, in most LDCs arable land per person of the agricultural population declined between 1965 and 2004. Many LDCs have exhausted their land frontier; in other countries, the cost of new land development was too high to be economically viable (Jazairy, Alamgir, and Panuccio 1992:105–106).

Moreover, in many LDCs, land holdings are severely concentrated: A small fraction of landholders own the bulk of the land. However, most holdings are less than two hectares apiece. The U.N. Food and Agricultural Organization indicates that in Latin America, the region with highest concentration, 1.3 percent of the landowners hold 71.6 percent of the land under cultivation. In Bangladesh, India, Indonesia, South Korea, Nepal, Sri Lanka, Yemen, and many other Asian countries, as well as Kenya, marginal farmers, those with less than one hectare of operational land holdings, hold more than half of the land but substantially less than half of *cultivated* land (ibid., pp. 107, 110).

Land inequality contributes to low income and high inequality (Binswanger, Deininger, and Feder 1995), which are major sources of LDC rural conflict. A long-simmering set of tensions caused by inequality in the distribution of land provided the tinder for internal wars in El Salvador, Guatemala, and Nicaragua. El Salvador's agrarian structure is indicative of the tensions that contribute to political violence: a highly unequal land distribution combined with a proletarianized labor force, maintained in the face of popular resistant by "intimidation, bloodshed, and other forms of organized violence" perpetuated by the ruling oligarchy that controlled the state (Pastor and Boyce 2000:367–370).

The rural poor can increase their income if they are provided access to productive resources, the most important of which is land. According to the International Fund for Agricultural Development, the rural poor can improve their access to land "through land redistribution (from larger holdings above a certain size), adjudication of traditional land systems (basically privatization of land previously held under customary tenure), settlement schemes (setting up poor families on newly developed and/or government-owned land and allocating land to them for cultivation and/or grazing), and . . . establishment of individual usufruct [use] rights or community rights" (Jazairy, Alamgir, and Panuccio 1992:106). These measures can reduce income inequality.

Yet poverty stems not only from unequal land distribution but also from low farmer productivity. Frequently, the land tenure system provides the cultivator little incentive for innovation, long-term investment, harder work, increased fertilization, and improved seeds. And, in many instances, landowners raise rents and crop shares when production goes up. The cultivator gains little from higher production.

Giving the poor more land has been tried in a number of countries, with mixed results. Land reform has frequently failed because of the political opposition of landlords (as in India), the transfer of holdings to relatives, or because the new landowners do not have access to credit, water, fertilizer, extension assistance, and other services. The World Bank and some OECD donors are willing to support market-assisted land

reform, where willing buyers negotiate deals with willing sellers, with the hope, usually illusory, that "government would facilitate the process by providing incentives to potential sellers and by helping potential buyers to acquire the means to buy." The World Bank (1996b:15) also sees market-assisted reform as feasible during a "farm debt crisis when land prices are depressed," but for political reasons the Bank and external donors have rarely supported this fundamental "structural adjustment" in agriculture land redistribution.

However, in the early 1950s Japan, Taiwan, and South Korea were under pressure and had assistance from the United States for land reform. In these three countries, where land redistribution was coupled with credit and extension services for small farmers, incomes rose substantially and discontent fell. In India, in contrast to the northern states of Punjab, Haryana, Bihar, Orissa, Andhra Pradesh, Assam, Meghalaya, and Nagaland where rural unrest festered in the midst of the absence of significant land reform and redistribution, Kerala state undertook radical, comprehensive land reform and redistribution in the 1970s that reduced the number of discontented landless or land-poor people (Berry 1997). "Operation Barga, a tenancy reform in the Indian state of West Bengal in the late 1970s and early 1980s, is one of the few examples of large-scale transfers of property rights not accompanied by major social upheaval. The operation was associated with an 18 percent increase in agricultural output in the state" (World Bank 2001f:57).

By the 1960s, economists believed that redistributing land to small farmers led to lower crop yields. However, research by Albert Berry and William Cline (1979) find an inverse relationship between the size of plot and land productivity. Land redistribution to the poor *usually* increases LDC agricultural output, at least after a period of adjustment, for two reasons: (1) A small farmer who receives security of ownership is more likely to undertake improvements; (2) small farms often use more labor per hectare – labor that otherwise might not have been used; and (3) households have more ways to smooth their incomes over the year. Generally, small farms have higher productivity because of fewer problems of supervision and a greater incentive to earn (especially relative to absentee-owned large farms in Latin America and collective farms in the former Soviet Union) (Berry 1997).

Berry (1997) recommends land reform and redistribution, with relatively low ceilings on plot size to discourage post-reform re-concentration of land, inclusion of tenants and landless workers, rapid and clean implementation of land redistribution, and a package of complementary support in infrastructure, credit, and technical assistance. These measures can increase incomes of the rural poor and reduce rural discontent and violence.

Despite the lack of effort to complement reform with better extension, credit services, or distribution of water rights, land reform begun in Iran in 1962 transformed a society of extremely wealthy landlords and virtual serfs into a more equal system of small peasants and increased output. The small- and medium-sized farms created in Iran's reform had twice the productivity per hectare of large farms even though a smaller percentage of the small farms was irrigated (Aresvik 1976:96–100; Berry 1997).

Where there is political will, land redistribution, coupled with credit and services for small farmers, can reduce poverty and inequality in agrarian societies. But even more modest land reforms can be effective in reducing poverty. Timothy Besley and Robin Burgess (2000) show that where vested interests block land redistribution, more moderate agrarian reform, such as reform of the terms of tenancy and the abolition of intermediaries between owner and tenant, as in Kerala, has a major impact in reducing rural poverty. And donors and international agencies can often provide the additional resources, making land redistribution or at least tenancy reforms feasible.

When small-sized farms have lower productivity per hectare, it may be because farmers are illiterate and thus tend to adopt technological innovations more slowly. However, it may result from lack of access to credit or extension help, or prudent risk-adverse behavior (see the earlier section on peasant farming). Furthermore, land fragmentation eventually inhibits productivity.

Frequently, however, land redistribution is not to the cultivator, the landless worker, or tenant, but to urban elites and affluent farmers who are influential with political elites. Distributions by East African governments from Europeans to Africans are examples of this problem. Zimbabwe's land distribution, 2000–04, has emphasized the politically connected rather than the cultivators. And from 1954 to 1974, Kenya replaced the colonial land tenure system with a new system in which Africans acquired land from Europeans in the central and western highlands. The government-assisted Africanization, purchasing land from the former owners and redistributing land to smallholders under the "one million acre settlement program." Thousands of hectares were transferred to Africans through land settlement schemes, large-scale individual purchases, land buying companies, and cooperatives. The landless were not the main beneficiaries. Indeed, many tenants, squatters, and other landless peasants were evicted with land privatization. For the political leadership redistributed most of the land to itself, allies, and clients, many of whom had no experience in farming. The Kenyan case illustrates how politics can limit the success of programs that ostensibly redistribute land to the cultivator.

Alternatives to distributing individual land parcels center on creating cooperatives or revising land tenure or rental rules. But these methods are limited. Quite often cooperatives are dominated by money lenders and landed interests, or they have management and incentive problems.

Changing rental systems is difficult. Many LDC tenants farm the landowner's land under a **sharecropping** system. Sharecropping may include tenure arrangements where the landlord provides the land, some equipment, and a proportion of seed and fertilizer in exchange for a proportion of the final crop. However, in West Bengal, India, the most common pre-1975 sharecropping arrangement was one where the landlord only leased land to the sharecropper, lived away from the village, and returned to the village periodically to collect the share of the crop, often payable in kind (Kohli 1987:133).

Revised land tenure rules that give the tenant farmer greater security, and thus more incentive to invest, are hard to enforce. Numerous landless workers may be willing to replace existing tenants and forego the revised rules, and landlords may

try to make up for lost rent in other tenant transactions. They may raise interest on money lent to tenants or lower wages. Or as Inderjit Singh (1990:1) notes in India: "In areas where redistribution is most desirable there is little land available to distribute." Despite the difficulties, land and tenure reforms can still be used to reduce poverty in many LDCs, especially where increased capital per farmer and improved technology enable the cultivator to gain without the landowner losing (Ahluwalia 1974:24; Berry and Cline 1979; Zuvekas 1979:220; World Bank 1980i:43; Nafziger 1988:47, 170; Jazairy, Alamgir, and Panuccio 1992:112).

SECURE PROPERTY AND USUFRUCT RIGHTS

LDCs face a tradeoff between equitable land distribution and the need for secure property rights. Remember Chapter 4, in which we discussed de Soto's contention that formal and secure property rights are the major explanation for differences between DCs and LDCs. **Property rights** assign the rights to and rewards from using resources to individuals, thus providing incentives to invest in resources and use them efficiently. Given the high cost of supervising agricultural wage labor, clearly allocating land rights to owner-operators generally increases the efficiency of farm production (Binswanger and Deininger 1997).

The failure to define property rights to agricultural land may adversely affect land use and improvement. As Theodore Panayotou (1993:35) contends:

> Property rights are a precondition for efficient use, trade, investment, conservation, and management of resources [such as land]. No one would economize on, pay for, invest in, or conserve a resource without an assurance that he has secure and exclusive rights over it, that he can recover his costs through use, lease, or sale, and that such rights will be enforced.

Sub-Saharan Africa suffers more than Asia and Latin America from insecure and uncertain land rights. Sara Berry (1984:92) observes that:

> In Africa, unfortunately, many insecurities now exist presently around the land because the land laws passed by many governments are ambivalent, confusing, inconsistent, inapplicable or badly applied. As a result access to, and control of land takes place . . . within a framework of conflicting legal and political principles and practices.

However, the World Bank economists Hans Binswanger and Klaus Deininger (1997) admit that private property rights may not produce the most efficient farming arrangements where information costs are high and markets for finance and insurance are imperfect. Moreover, the emphasis by the IMF, World Bank, and LDC elites on the abrupt shift from traditional use rights to individualized titling from purchases and sales in a land market has reduced agricultural efficiency, torn safety nets for the poor, and increased risk.

Under most traditional community or village systems, farm families not only have inheritable use rights to cropland, pastures, and forests, but these land rights are

highly transferable. These systems provide tenure security at low cost, thus not discouraging individuals from investing in the operation (ibid.).

Agricultural intensification from population growth gives rise to pressure for increasingly formal private property rights. But the precipitate registering of individualized land titles, in the name of modernizing land-rights systems, reduces tenure security in the short run, as the number of land disputes surge, as rural masses, unaware of the implications of registration, are outjockeyed by clever, well-informed, and powerful individuals. Women rarely owned land or had customary tenure right recognized by political authorities in Afro-Asia, thus lacking collateral, credit, and investment in productivity improvements, hurting their families' health and nutrition (U.N. Development Program 2003:90). Generally, in the longer run, the high costs of land registration and lack of familiarity with the government bureaucracy displace weak or politically marginalized groups and redistribute land to the commercial and estate sectors, increasing the concentration of land holdings.

As an example, Kenya's systematic, compulsory individualized titling of all farmlands since the 1950s contributed to a substantial gap between the control of rights reflected in the land register and recognized by most local communities, providing opportunities for affluent town dwellers to establish property rights though land registration. In Nigeria, since 1960, under cover of national development projects, state officials granted extensive land tracts to friends, dispossessing many villagers from their customary lands. Redistribution through individualized titling on demand not only increased inequality but also reduced labor intensity, capital formation, and innovation, contributing to the inverse relationship between farm size and yields (Cornia 1994; Platteau 1996; Berry 1997), and the potential for agrarian discontent.[5]

In Ethiopia, political conflict, land insecurity, and environmental degradation have formed a vicious circle. The insecurity and conflict of the past quarter of a century has compelled people to concentrate in safer zones, thus intensifying the process of degradation of the available local resources, especially for people living on the razor-edge of survival. In light of these problems, in Ethiopia and other sub-Saharan African countries, secure property and use rights may sometimes mean maintaining the tenure security but highly transferable land rights of traditional community or village land systems. Secure property and usufruct rights contribute to safeguarding environmental resources and agricultural land productivity but also reduce the potential for political instability (Kibreab 2002:115–130).

CAPITAL

Agriculturalists have often assumed that the success of mechanization in raising production in the United States and Canada can be duplicated in LDCs. However, as Chapter 9 contends, technology developed for DCs frequently is not suitable for LDCs, where labor tends to be low cost and capital is expensive. In these countries,

[5] To avoid undesirable effects, Binswanger et al. (1995:2721) recommend that "titling programs should be accompanied by publicity campaigns to ensure widespread knowledge of the rules and procedures. Both equity and efficiency considerations argue that titling programs be systematic rather than on demand."

planning has to be such that production increases from new machinery justify its high cost.

Here are a few sensible policy guidelines. When farms are small, improve farm implements rather than use tractors and combines. If costly machinery is used, it should be rented to all farmers to spread the cost over enough units to be economical. New machinery is more likely to pay for itself if it is used during planting and harvesting to reduce labor shortages rather than during slack farm seasons, when labor is at a surplus. Moreover, machinery prices should probably not be subsidized. Eastern Nigerian farm settlement schemes in the 1960s, for instance, used tractors and earthmovers when they were subsidized, but returned to labor-intensive means of clearing and cultivation when machinery was priced more realistically (Lele 1975:35; Zuvekas 1979:217).

Poor farmers typically have less access to public capital than affluent farmers and city dwellers. Providing equal access to investment in human capital – education, training, research, and health care – increases productivity.[6] Moreover, as indicated in Chapter 5, direct social investment (roads, schools, and so on) in poor rural areas will increase income and jobs.

CREDIT

Farm credit markets are frequently flawed by weak competitive forces, weak legal enforcement, lack of accountability, corruption, lack of collateral from poorly defined tenure or property rights, and the rationing out of small farmers (Braverman and Guasch 2000:362). The major source of credit for many small farmers is the village money lender–large landlord, who may charge interest rates of 5 to 10 percent per month. Still, some small farmers prefer this credit to bank or government credit, as repayment schedules are more flexible. Frequently money lender and debtor are bound by a semipermanent patron–client relationship, in which the creditor provides virtually unconditional access to money in emergencies and for marriage celebrations for daughters in the family. (Remember the discussion of Balayya in Chapter 1.)

Commercial farmers cannot make a profit if they pay usurious interest rates. Yet, these farmers have a unique need for credit that may require a separate loan agency. Expenses for the time between sowing and harvest frequently have to be financed, and as small farmers have little fixed capital, they must offer their land as collateral. Yet government loans boards rarely accept such collateral, since it is difficult politically to foreclose land if the farmer fails to repay. Farming is also subject to risks, such as weather, that cannot be controlled.

Government-administered credit may be necessary to pay for technological innovation, such as high-yielding varieties of grain, as well as the extension help, storage facilities, irrigation, and fertilizer required to take advantage of a new technique. Despite great need, government-administered credit programs are rarely

[6] According to Huang, Orazem, and Wohlgemuth (2002:615–627), however, “Human capital raises rural incomes, but this effect is swamped by higher returns to human capital in urban markets. This leads to ‘brain drain’ from rural areas.”

self-supporting and have limited success (Hunter 1978:83). Still there are a few exceptions, successful group lending schemes that lend to small farms and enterprises, such as the Grameen Bank of Bangladesh (see Chapter 6).

POWER SOURCES

FAO (2003:151–157) classifies sources of power for agriculture into stages. Sub-Saharan Africa in 1997–99 was still at the stage where humans are the predominant source of power, with modest contributions from draft animals and tractors. These are countries where two-thirds of the workforce and generally more than one-third of GDP are in agriculture.

In East Asia 40 percent of the area was cultivated by hand and 40 percent by draft animals, whereas in South Asia the figures were 30 and 35 percent, respectively. Those regions with draft animals as the predominant source, such as South Asia, had a higher intensity of cultivation for farm land and a larger percentage of the area under irrigation.

In Latin America and the Middle East/North Africa, tractors were the predominant source of power. High levels of tractorization were generally associated with relatively well developed economies and the production of cash crops. Agriculture employs less than half of the workforce and generates less than one-fourth of GDP. In many of these countries, the absolute number of people working in agriculture has begun to fall (FAO 2003:153–154).

In the late 1990s, in LDCs, 35 percent of harvested area was by hand (that is, human power), 30 percent by draft animals, and 35 percent by tractors. By 2030, FAO expects that 55 percent of harvested area will be tilled by tractors and only 25 percent by hand (ibid.). Mechanization, however, is not the cause but the effect of agricultural development, or in some instances the result of increased cropping intensity, the production of cash crops, and relatively higher levels of nonagricultural development (ibid.). It is a mistake to advocate tractors and machinery where labor is abundant.

RESEARCH AND TECHNOLOGY

According to Yujiro Hayami and Vernon W. Ruttan's (1985:4–5) "induced innovation" model, technical and institutional changes are spurred "through the responses of farmers, agribusiness entrepreneurs, scientists, and public administrators to resource endowments and to changes in the supply and demand of factors and products." The relative supply of land and labor is critical in determining appropriate agricultural technical change. Agricultural growth eases the limitations on production imposed by inelastic land and labor supplies. Which factor is scarcer determines whether new technology should be labor- or land-saving. For the Hayami-Ruttan model to work, market prices need to be effective in signaling technology development, and agricultural institutions need to be transparent and accountable.

Research-led technological change in agriculture contributes to high rates of return and has a substantial impact on reducing poverty in Afro-Asia. Colin Thirtle, Lin Lin, and Jennifer Piesse (2003:1959–1975) find that an increase in agricultural yield of 1 percent reduced $1/day poverty by 40 percent in South Asia, 46 percent in

sub-Saharan Africa, and 24 percent in LDCs generally. However, agricultural growth in Latin America is not pro-poor as extreme inequality in income and land distribution prevents the poor from gaining.

Chapter 8's section on the food-population balance will emphasize the importance of research and technology, especially as generated by an international network of agricultural research centers in cooperation with counterparts in national research stations, in improving agricultural technology. Here we want to stress that the technology used should depend on available resources. For example, Japan, with a ratio of farm workers per cultivated hectare almost 50 times as high as that of United States, has emphasized biological and chemical technology (such as new seeds and fertilizer) rather than mechanical technology. For the majority of LDCs with high worker–land ratios, the Japanese approach is more sensible than that of the United States (Hayami and Ruttan 1971:111–128).

Nonagriculture, by absorbing agricultural labor and supplying technology substituting for land and labor, helps determine relative prices and the path of technical change. How farmers, research institutions, farm supply companies, and agricultural department bureaucrats and politicians interact in response to prices generates a unique pattern of agricultural technical change and growth in LDCs (Hayami and Ruttan 1985:4–5).

Externalities from conveying to farmers valuable information about new technology may justify its subsidization (Stiglitz 2000b:336). Yet the introduction of new technology in rural areas is often quite risky. Understandably, farmers are reluctant to accept change unless their risks are adequately covered. From long experience, peasants have reason to be skeptical of the findings of experimental research farms. When family survival is at stake, it is more important to avoid any probability of crop failure than to maximize long-run output.

In a number of instances in LDCs, peasant income has fallen, sometimes threatening household survival, when innovation occurred. Too often, the new methods were not adapted to local farming conditions: They were inadequately tested in a different soil, climate, and environment and had adverse side effects that destroyed any benefit they may have had. In other instances, the methods failed to consider social, economic, or institutional realities.

Clearly, introducing new technology requires active initial monitoring, so that probable social and economic effects are foreseen: Whereas on-farm tests are required, small farmers are free to experiment with only a fraction of their land holdings, using the remainder to produce food by the old techniques in case the experiment should fail.

Perhaps China best illustrates the importance of adequate agricultural research policies. From the 1950s through the late 1970s, China had a very slow growth in food output per person. During that period, Chinese agricultural institutes were isolated from international institutes and did little applied or adaptive agricultural research. During the height of the Cultural Revolution from 1966 to 1970, some leading agricultural scientists were sent to rural areas to learn from the peasants and workers. At about the same time, the matriculation of agricultural students was disrupted because the educational system was shut down. Deng Xiaoping, China's

foremost political leader during the late 1970s, 1980s, and early 1990s, argued that lagging research and low-quality education, especially in agriculture, constitute the "greatest crisis" in contemporary China (Howe 1978:26–27, 81). China's dilemma underscores the importance of fundamental agricultural research, either undertaken in local research institutes or borrowed and adapted from abroad.

The World Bank (2001e:184) observes how things turned around after Mao. "Anyone who doubts the impact of agricultural research on farm income and household food security (and thus poverty) should visit rural areas in Guizhou, the poorest province of China." Researchers introduced quality protein hybrid corn to Guizhou in 1994. This corn not only is higher yielding than conventional varieties but also has essential amino acids for child growth. The 25,000 local families are better fed and have used surplus grain to produce pork to raise income and food security. Neighboring provinces also have adapted this variety of corn (ibid.).

Chapter 8 also discusses agricultural research, stressing the importance of technology that matches resources and social conditions. Farmers need to be more directly involved in selecting research topics. Also, the LDC agricultural institutes must develop and adapt technology suitable for small farmers and laborers and disseminate this technical information (Hunter 1978:78–82; World Bank 1990:69). Additionally, institutes need to stress research on foods, such as cassava and millets, that loom large in poor people's budgets (Besley and Kanbur 1993:81).

The scope of research and technology to increase agricultural productivity is broad. Innovations in institutions, improvements in human capital, and embodiment of technology in new biological and physical capital can transform agricultural development and improve productivity (Bonnen 1998:271). The issue of bioagricultural technology is important enough to be treated in a separate section later.

EXTENSION SERVICES

Much agricultural information, technology, and investment in human capital are public goods that government can facilitate or provide. Extension personnel can take the results of agricultural research and information to the farmers. The role of the agent is crucial and varied, and he or she is accountable to the farmer. Agents must contact and speak with farmers; pass on simple technical information; be able to demonstrate it personally; identify difficulties; know sources of technical advice and training; identify farmers who are good credit risks; arrange for fertilizer, seeds, and other inputs from government depots; and clearly report farm problems and characteristics to researchers and planners. And all this can be done more effectively where information and communication technologies are available.

The World Bank (2004a) has identified

> the need to develop agricultural extension systems as institutionally pluralistic networks of institutions providing varied information and innovation services to rural peoples. Such extension systems must be demand-driven with closer linkages to clients, must become more efficient, and must develop more sustainable sources of financing.

Unfortunately, agricultural extension programs in LDCs are not very successful. Extension agents are often few and far between, ill-paid, ill-trained, and ill-equipped to provide technical help. In many instances, they are beholden to the large, influential farmers and neglect the small farmers, who have far less education and political power. They especially neglect women, even though women manage a sizable proportion of farm activities, particularly food crops, in traditional agriculture.

Extension services based on the U.S. model are not effective. Edward B. Rice has found that in Latin America and other LDCs, the independent extension service based on the U.S. model introduces few innovations and contributes little to rapid growth. He suggests that extension personnel might be more effective if integrated with development organizations, such as loan banks, irrigation authorities, seed and fertilizer distribution centers, agrarian reform agencies, or cooperative organizations (Rice 1974; World Bank 1978:43; Lele 1979:62–63; Besley and Kanbur 1993:55; Antholt 1998:360).

In other instances, "private entities – such as management consultants, nongovernmental organizations, farmers' groups, trade organizations, and commercial input suppliers" might more effectively respond to farmers' demands. However, economic returns are rarely sufficient to induce private units to provide services, especially to small farms and the rural poor. Because extension is a public good, government may have to set rules and correct market and policy failures, sometimes by providing funding (World Bank 2004a).

ACCESS TO WATER AND OTHER INPUTS

Irrigation increases agricultural productivity. It enlarges the land area under cultivation, permits the growth of several crops per year, and regulates the flow of water. However, investment in irrigation and focus on water distribution vary substantially between the two continents with a predominantly agricultural population:35 percent of cropland in Asia is irrigated, but only 5 percent in Sub-Saharan Africa (Tomich, Kilby, and Johnston 1995). Still, even in Asia, water access and availability can often be problematical for small farmers. For example, in Pakistan's century-old irrigation system in the Indus River basin, large, influential farmers get first chance at available water, wasting it, as cost is unrelated to the amount used. Indeed, water-right reform is often necessary for land reform to be successful. But even were water access not a problem, the small farmer seldom has the savings, credit, or incentive to invest in wells and other water projects.

Usually the marginal cost of irrigated water is low and the cost of monitoring water usage is high, making water projects public goods and probably justifying government provision (Stiglitz 2000:336). When government funds are inadequate, water courses deteriorate. Obviously, water rights management and user fees must be planned to avoid inequity and inefficiency.[7] Competent technical management

[7] The World Bank (2003d:99) contends that property rights to water need to emerge, at least in situations of scarcity.

must foresee salinity or sedimentation problems. But even when these matters are competently handled, irrigation is not a panacea for LDC agriculture. Many large-scale irrigation systems in LDCs have failed to increase agricultural output to pay for their high construction and operating costs. These enduring monuments to failure underline the need for detailed preinvestment feasibility studies of irrigation projects, including careful estimates of capital, personnel, inputs, and maintenance costs over time and how to increase output (see Chapters 11 and 18).

Inputs tend to be complementary. For high-yielding varieties of rice associated with the Green Revolution, farmers require not only water but also seeds and fertilizer. Government ministries or agencies that supply these inputs must guarantee input quality, accessibility, and quantity (World Bank 1978i:40–42; Zuvekas 1979:216; Ensminger and Bomani 1980:63). The Nigerian bureaucracy failed to plan for its Operation Feed the Nation in 1979: One-half million tons of imported fertilizer were delivered two months too late for the planting season.

Government frequently subsidizes inputs such as fertilizer, a questionable policy. Because of farmers' protests, in February 2003, India resisted withdrawing fertilizer subsidies within days after Finance Minister Jaswant Singh announced them (Economist 2003d:36).

TRANSPORT

The LDC crops otherwise competitive with those in other countries often cannot enter world markets because of high transport costs. Investment in roads, railroads, port dredging, canals, and other transport can lower the cost of producing farm goods and delivering them to markets. The U.S. Midwest became a center of specialized production of corn, wheat, beef, and pork in the mid-19th century only after several decades of road, railroad, steamboat, and canal expansion. Bolivia illustrates the transport problem for LDCs. Agricultural commodities in Bolivia's lush subtropical and tropical eastern lowlands are at a competitive disadvantage because of high transport costs: Crops must get over the Andes mountains to the west or travel the great distance to the eastern coasts of Brazil and Argentina. Farmers near La Paz pay about twice, and those in remote rural areas of Bolivia several times, the price of fertilizer paid in the United States or Mexico. Thus, agricultural export potential in Bolivia is severely limited (Zuvekas 1979:135, 230).

MARKETING AND STORAGE

Poor marketing channels and insufficient storage facilities often hamper grain sales outside the region of production and limit production gains from the improved seeds of the Green Revolution. For example, the lack of storage and drying facilities in the Philippines in the 1960s prevented many farmers from growing two rice crops a year. And in northern India, the wheat resulting from production in 1968 had to be stored in schools or in the open air. Rats and rain destroyed as much as one-third of this crop.

Government must plan for the impact of new seeds and improved agricultural techniques on marketing and storage. Government can provide the infrastructure, such

as roads and grain bins; set uniform grades and standards that sharpen the incentive to improve product quality; and by supplying national price information, help farmers decide which crops to plant, when to sell, and what storage facilities to build.

Many LDCs have established official marketing boards to buy crops from farmers to sell on the world market. However, these boards have a tendency to demand a monopsony position to ensure financial success and frequently accumulate funds to transfer from agriculture to industry. Nevertheless, the boards can stabilize crop prices and provide production and market research, promotion, extension assistance, and other services.

Many government marketing institutions in LDCs have been established to replace open markets considered inefficient, antisocial, and subject to exploitation by middlemen and women. However, a government should examine whether its use of scarce capital and skilled personnel to establish such an enterprise to replace the private intermediary is socially beneficial. Ironically, such marketing institutions are more likely to eliminate the small, competitive grain trader than the agent or distributor for the large, influential agribusiness. Furthermore, the private middleman or woman operating in a competitive market is likely to have a smaller markup than the state enterprise, which frequently has a monopoly. Moreover, empirical evidence indicates that where transport and measurement infrastructure is adequate, the farm market is relatively efficient in transmitting price information, providing incentives, allocating production among commodities, and rationing goods among consumers. (This section draws from Hayami and Ruttan 1971:216, 267; Hunter 1978:89–91; Lele 1979:100–101.)

PRICE AND EXCHANGE RATE POLICIES

Irma Adelman's and Sherman Robinson's (1978:128–146) simulations of the effect of government policy interventions warn against confining rural development projects to those that only increase agricultural productivity – making more machinery and credit available; improving irrigation, fertilizer, and seeds; adding new technology; enhancing extension services; and so on. Increased agricultural production and an inelastic demand (see Figure 7-3) are likely to reduce the agricultural terms of trade as well as rural real income and to increase urban–rural inequalities in the short run. Thus, to reduce rural poverty, production-oriented programs must be combined with price and exchange rate policies, improved rural services, land reform, farmer cooperation, and more rural industry.

Empirical studies indicate a high *long-run* **elasticity of supply** (that is, a high percentage change in quantity supplied in response to a 1-percentage change in price) in LDC agriculture. Long run means the farmer can vary the hectares devoted to a given crop.

In response to consumer pressure, LDC governments frequently establish maximum producer, wholesale, or retail prices for food. But the long-run effects of such policies, given high supply elasticity, may raise prices by discouraging domestic production and increasing reliance on imports. This effect occurred in Argentina in the late 1940s. Subsequent government measures to increase relative farm prices in

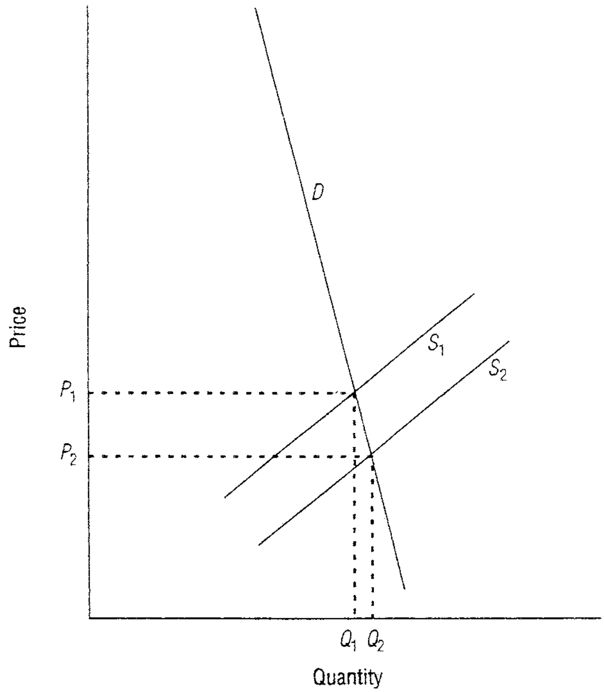


FIGURE 7-3. Increased Agricultural Supply When Demand is Inelastic. When the relevant range of a demand curve (D) is inelastic (that is, when the percentage change in price exceeds the percentage change in quantity demanded), an increase in agricultural supply will reduce agricultural income or total revenue. Note that the area of the total revenue (price times quantity) rectangles decreases in size as supply increases from S_1 to S_2.

the early 1950s did not stimulate output as expected because farmers felt the more favorable prices would not be permanent. Subsidizing food is the only way of reducing consumer food prices without harming production incentives (even in socialist countries).

The benefits of research, technology, extension and credit programs, and so on can be lost with ill-conceived pricing policies. Technological development is more efficient when farm input and output prices are competitive. Researchers and extension agents are more likely to innovate when farm prices clear the market than when they are controlled. Finally, farmers tend to press research institutions for technological innovations with a high payoff – for example, those that save resources with an inelastic supply (Hayami and Ruttan 1971:56–59; Zuvekas 1979:233–234).

The World Bank's Berg report criticizes African states for keeping farm prices far below market prices, dampening farm producer incentives, using marketing boards to transfer peasant savings to large industry, and setting exchange rates that discourage exports and **import substitutes** (domestic production replacing imports). The World Bank economist Kevin M. Cleaver shows that the **real exchange-rate change**

(domestic inflation divided by foreign inflation times the percentage change in the foreign exchange price of domestic currency), from 1970 to 1981, is negatively related to agricultural (and overall) growth rates. Kenya and Lesotho, whose farm exports remained competitive as the real value of their domestic currency depreciated, grew faster than Ghana and Tanzania, whose real domestic currency value appreciated (increased) (World Bank 1981a; Cleaver 1985). These state interventions into the price system hurt farmers, increasing industry and agricultural income differentials.[8]

Agricultural resource allocation is highly affected by the foreign exchange rate. As discussed in Chapters 9 and 18, a domestic price for foreign currency lower than equilibrium price reduces farm export receipts and wastes capital goods imports by those people acquiring foreign currency.

IMPROVING RURAL SERVICES

Urban areas have far more schools, medical services, piped water, and so on than rural areas. If rural, middle, and lower classes opposed the urban bias of the national political leadership, they might be able to increase their share of social investment. It is especially important to narrow the educational gap existing between the rural and urban child. As argued in Chapter 10, increasing the share of public educational expenditures in rural areas redistributes income to the poor. And if rural schools begin to place a greater emphasis on curricula that prepare children for rural employment, the rural areas will retain *and* attract more skilled people.

COOPERATIVE AND COLLECTIVE FARMS

The other side of the coin from Berry and Cline's arguments in favor of small family farm is the use by China (1952–79) and Russia (1929–91) of state, collective, and cooperative farms. Many LDCs, at least until 1991, have favored large farms, believing they can take advantage of internal economies of scale. However, Nancy L. Johnson and Vernon W. Ruttan (1994:691–706) show, on the basis of case studies of large farms in capitalist and socialist economies, that except for very specific circumstances, economies of scale in large-scale farming do not exist. Because labor and machines are both mobile in agriculture, the monitoring costs for supervising hired labor is expensive, contributing to scale diseconomies absent in mass manufacturing. Moreover, farm hands must work independently, anticipating problems and reacting to different situations as they arise, a skill more difficult to teach than factory labor. Furthermore, the annual cycle of preparing the seedbed, planting, and harvest requires that farm tasks be done sequentially, limiting specialization gains.

Agricultural policy makers in Tanzania, Ethiopia, Mozambique, Ghana, Nigeria, and other African countries, many of whom misunderstood these economies of farm size, emphasized large capital-intensive estates, which have contributed to the decline

[8] Khan and Khan (1995) argue that African states will need to cease intervening into farm prices, while substantially investing in infrastructure and water, changing property rights, and applying new technologies widely.

in African agricultural output per capita (Tomich, Kilby, and Johnston 1995).[9] As an example, from 1967 to 1976, Tanzania launched ***ujamaa*** (literally "familyhood") socialism, which emphasized land nationalization and communal village production units. *Ujamaa* failed, as its egalitarian goals collided with the actions of the state bureaucracy, whose mushrooming racketeering, embezzlement, and accumulation took place at the same time that both peasant prices and the transfer of resources from agriculture to the state fell (Nafziger 1993:117–119).

Farmers can sometimes reduce diseconomies of scale through machinery. Thus, in Brazil, mechanized plows allowed those farming hard *cerrado* soils to plow in advance of the rains and reduce runoff, and in North America, grain dryers lengthen harvest. More generally, there are economies in the use of lumpy inputs such as machinery or management; in access to inputs, credit, services, storage facilities, marketing, or distribution; and where processing or marketing economies are transmitted backward to the farm. Still, Johnson and Ruttan (1994:691–706) believe that optimal-sized farms are generally owner-operators, who can achieve economies of scale in purchasing and marketing cooperatives.

COLLECTIVE FARMS OR COMMUNES

Nafziger's supplement (2006b) considers cooperatives and Soviet-type state and collective farms, discussing Stalin's rationale for collectivization and China's effort to "learn from the Soviet Union" by introducing communes from 1949 to 1959. Most economists doubt that the benefits of collective agriculture surpassed the costs. During the Soviet collectivization of 1929 to 1933, the forcible collection of grain, the confiscation of farm property, the arrest and deportation of real and alleged kulaks, the destruction of tools and livestock, the class warfare between peasants and kulaks, the administrative disorder, the disruption of sowing and harvest, and the accompanying famine led to the deaths of about five million people. Gross agricultural output per person declined from 1928 to 1937. Although Soviet agricultural performance improved from 1937 to 1991, the average level of food productivity per hectare was still below Western countries such as Italy. In the early 1990s, the Russian leadership was divided on agricultural policy, especially in light of peasant aversion to the risks of reform. Later on in the 1990s, despite efforts by the Russian government to introduce property rights in land, rural people opposed decollectivization. Vladimir Popov (1996; 2001:41) indicates that in the early to mid-1990s, the total wage bill of large Russian state and collective farms would about equal the value of output at world market prices; indeed at these prices, farms were value subtractors, meaning that farm products were worth less than the inputs embodied in them. No wonder people living on farms resisted land reform. The situation was similar to that in Moldova, where, in addition, a withdrawal from the collective

[9] Kung (1994:175–187), however, contends that collective agriculture in China failed, not because of the difficulties of monitoring work effort in a team, but because of the way the state impoverished the peasantry through a policy of extracting agricultural produce and a flawed remuneration system that rewarded work by piece rate rather than by time worked.

farm meant difficulty in obtaining inputs and marketing products (Dudwick et al. 2003:353).

In China, although industrial output per capita grew by 8.3 percent per year between 1952 and 1975, food output per person increased only 0.2 percent per year. Moreover, small private plots in the Soviet Union and Maoist China produced a disproportionate share of vegetables, livestock, and peasant's money income, albeit with more labor per hectare than on the collective. Furthermore, in both socialist Poland and Yugoslavia, farmers resisted collectivization. In these countries, the private sector accounted for more than four-fifths of the agricultural area and output. To be sure, the Soviet people were adequately nourished, and Maoist China met the nutritional needs of its poorest 40 percent better than most other low-income countries. Nevertheless, the low productivity of pre-1989 Eastern European and Soviet agriculture compared to capitalist North America and Western Europe (Table 7-1), together with the slow pre-1979 growth in Chinese food output per person, suggests the failure of collective agriculture as a model for developing countries.

Collectivism's advantages proved to be much less than their proponents claimed. Low farm prices and the transfer of agricultural savings to industry hampers agricultural growth. The few economies of large-scale production can be achieved instead through cooperatives, renting machinery, and technical and managerial assistance provided by extension agents. Local or provincial government or private enterprise can provide many of the social services mentioned. Even in a mixed or capitalist economy, off-farm employment opportunities can be made available to farmers during the slack season. Although the state leadership may wish to control the grain market for political reasons, there is no evidence that this increases agricultural efficiency and growth.

There are other problems with the collective farms. The link between individual initiative and effort, on the one hand, and income, on the other, is not so powerful as on the individually or family-owned farm. Also, the collectivist system for paying labor is complicated, time consuming, and cumbersome: The output of the production unit is usually distributed by work points based on the type of task and work performance. Disputes concerning its accuracy and equity are common. Additionally, there are marked differences in average income between collective farms. Effort and efficiency cannot usually overcome poor location and soil. Moreover, collective farm investment tends to be made for political reasons rather than prospective rates of return. Furthermore, collective farms are rewarded on the basis of output rather than cost efficiency and demand for what is produced.

In China, from 1979 to 1983, production teams (usually the size of a village) distributed the land they had farmed collectively for more than two decades under contract for long-term use rights to individual households, the **household responsibility system**. The local authorities allocated land to households on the basis of equal division by population (adjusted by age and gender), equal division by labor force participation, or some combination of the two methods. Martin Gaynor and Louis Putterman (1993:357–386) show that these methods of equal distribution of land correspond to optimal incentives for increasing the productivity of land.

Moreover, ironically despite Deng Xiaoping's repudiation of Mao's slogans of egalitarianism and increasing moral (not material) incentives, Martin King Whyte (1986:103–123) thinks Deng's decollectivization and price decontrol probably reduced China's income inequality. Although Mao attacked privilege among encrusted bureaucrats and intellectuals, his opposition to financial incentives reduced income, especially among peasants. Mao's urban bias policies widened the urban–rural gap from the mid-1950s to the mid-1970s. Although post-1979 agricultural reforms encouraged enterprising peasants "to get rich" and widen intrarural income differentials, the rapid growth of agricultural income vis-à-vis industrial income reduced the difference between town and countryside, perhaps even reducing overall income inequality. Additionally, relaxing restrictions on urban emigration permitted rural families from depressed areas to reduce populations and benefit from nonfarm remittances. As implied earlier, market-oriented reforms may cut inequalities fostered by the state's town-biased allocation system.

RURAL INDUSTRY

As discussed in Chapter 9, demand for agricultural labor grows slowly (and in later stages may even decrease). Technical advances and capital accumulation displace some farm labor. The LDC demand for food grows slowly, because its income elasticity (percentage change in per capita food purchases relative to percentage change in per capita income) is only about one-half. By contrast, population growth in rural areas is usually more rapid than in LDCs as a whole, so the labor supply usually grows rapidly. Off-farm employment must expand to take care of these extra workers. In the 1970s and 1980s, nonfarm activities comprised 79 percent of rural employment in Latin America, 34 percent in Asia, and 19 percent in Africa (Hazell and Haggblade 1993:190–192; World Bank 1990:60–61).

Public works projects and small- and medium-scale manufacturing, agribusiness, and processing increase relative incomes and reduce unemployment and underemployment in rural areas. Since 1958, China has had a policy of "walking on two legs," with large urban manufacturing augmented by a "second leg," small-and medium-sized industry on the rural communes. Until liberalization in 1991, India limited industrial expansion and new enterprises in metropolitan areas, whereas firms locating in industrially "backward" nonmetropolitan areas were given favored access to materials and facilities.

Industries and retail enterprises complementary to agriculture – firms producing and selling basic consumer items, blacksmithing, repair, and maintenance shops – are certainly worth developing. However, many industrial operations cannot be competitive without the materials, power, markets, financial institutions, communication network, and skilled labor usually concentrated in major urban centers. For example, except in a few metropolitan areas in Nigeria, the electricity supply has been too unreliable for many enterprises, including those using plastic injector molding machines, iron-smelting furnaces, or refrigerators. In the 1980s, Deng Xiaoping admitted that the emphasis by rural communes during the Chinese Cultural

Revolution on making their own lathes and tractors was very uneconomical, even given the high transport and distribution costs.

POLITICAL CONSTRAINTS

Improved rural social services, greater price incentives, effective farm cooperatives, and public spending on research, credit, rural industry, extension services, irrigation, and transport are frequently not technical, but political, problems. The political survival of state leaders in fragile LDCs requires marshaling the support of urban elites (civil servants, private and state corporate employees, businesspeople, professionals, and skilled workers) through economic policies that sacrifice income distribution and agricultural growth. Moreover, LDCs may lack the political and administrative capability, especially in rural areas, to undertake programs to reduce poverty. Established interests – large farmers, money lenders, and the urban classes – may oppose the policy changes and spending essential to improving the economic welfare of the small farmer, tenant, and landless workers.

Additionally, state intervention in the market is an instrument of political control and assistance. Government, quasi-government corporations, and private business pressure political elites for inexpensive food policies to keep down wages, and governments sometimes use troops to quell food-related riots (as in Brazil, Egypt, and Tunisia in the mid-1980s). Unrest by urban workers over erosion of their purchasing power has threatened numerous LDC governments. Real wage declines under Nigeria's Abubakar Tafewa Balewa government in 1964 and the Yakubu Gowon government in 1974 to 1975, as well as Ghana's Kofi Busia government in 1971, contributed to political unrest and violence that precipitated military coups. Politicians also may help emerging industry reduce raw material or processing costs. Market intervention provides political control for elites to use in retaining power, building support, and implementing policies.

In 1954 in Ghana, Kwame Nkrumah's Convention People's Party (CPP) passed a bill freezing cocoa producer prices for four years, anticipating use of the increased revenues for industry. But the CPP government undercut the newly formed opposition party in the cocoa-growing regions by selectively providing subsidized inputs – loans, seeds, fertilizer, and implements – for prospective dissidents. Additionally, state farm programs in each constituency in the 1960s made available public resources to organize support for the Nkrumah government.

Market-clearing farm prices and exchange rates, whose benefits are distributed indiscriminately, erode urban political support and secure little support from the countryside. In comparison, project-based policies allow benefits to be selectively apportioned for maximum political advantage. Government makes it in the interest of numerous individuals to cooperate with programs that harm the interest of producers as a whole (Bates 1981; Rimmer 1984; Hendry 1988:11; Nafziger 1988:140–56, 173–175).

Rural dwellers, who are often politically weak and fear government reprisals, rarely organize to oppose antirural policies. Although poor farmers have little tactical power, rich ones have too much to lose from protest. Moreover, they have less

costly options – selling in black markets, shifting resources to other commodities, or migrating to urban areas. Yet, eventually rural classes harmed by state market intervention may have to mobilize to oppose the urban and large-farm bias of many contemporary LDC political leaders.

Agricultural Biotechnology

Biotechnology is "the application of biology to human use" (Burke 1999). Old applications include "fermentation for drink and food, plant and animal breeding," and enzymes in cheese making and other food processing (Norman 2003). New biotechnological applications include (1) tissue culture, in-vitro multiplication or regeneration of plant material in the laboratory, bypassing slower cross-fertilization and seed production; (2) marker-assisted selection that shortens plant breeding by directly identifying desired DNA segments or genes, reducing the number of generations to develop a new variety; (3) genomics, the describing and deciphering of the sequence, location, function, and interaction of all genes of an organism; and (4) "genetic engineering, in which one or more genes are eliminated and transferred from one organism to another without sexual crossing." Such genetically modified organisms (GMOs) first became commercially available in the 1990s.

Benefits of agricultural biotechnology include potentially large increases in productivity (reduced labor, capital, fertilizer, or toxic herbicide inputs) and improvements in quality, keys to reducing rural poverty (FAO 2003b:314–316; Norman 2003). First, for LDCs, the "built-in inputs such as pesticides embodied expertise directly into the seeds, reducing output losses where sophisticated production techniques (capital-intensive insecticides) are difficult to implement or where farmers lack the "management skills to apply inputs at the right time, sequence and amount." Second, higher productivity may mean lower prices and increased availability of nutritional foods for consumers, especially amid a growing population. Third, many poor people are cultivating marginal land; GM crops can increase the potential to grow food in saline, acid, or other low-quality soils (FAO 2003b:322).

From 1996 to 2003, GM crops increased fortyfold globally to seven million farmers in 18 countries growing 69 million hectares (167 acres), about 18 percent of the world's food-crop cultivation (FAO 2003:314–327; Elias 2004:C2). Important GMOs include insect-resistant corn, cotton, and other crops; herbicide-tolerant soybeans, virus-resistant genes in tobacco, potatoes, and tomatoes; color alteration in carnations; or stacked traits that embody combinations of insect tolerance, herbicide resistance, and quality improvements such as high lysine, low phytate, or higher oil content. GMO growth has decelerated in recent years either from saturation, lower prices from increased output (e.g., canola), or DC consumer concerns about biosafety and risk to human health. In 2001, soybeans, corn, cotton, and canola represent virtually all the area of GM crops. As of 2004, GM or transgenic farm animals and fish have remained outside commercial food production systems (FAO 2003:316–320).

The earliest major GM breakthrough in LDCs is Bacillus thuringiensis cotton that reduces insect damage, adopted in China (2.8 million hectares in 2003) (Elias

2004:C2). However, adoption of most GMOs in LDCs in limited by the inability of poor farmers to pay for new technologies. In the pipeline are salt-tolerant varieties of rice in China (reducing water scarcity and loss of land to salinization), more drought-tolerant plants, golden (vitamin A enriched) rice, medicine or food supplements directly within plants (which could improve the nutrition of the poor), specialty oils, anticancer drugs (taxol), poplars (grown in France for paper production and demanding less energy and producing less waste during processing), soybean oil with less saturated fat, and corn that improves livestock nutrition (FAO 2003:318–322).

There are numerous risks associated with new technologies. Can LDCs harness the potential of biotechnology to increase productivity? Most of the gains from GM technology accrue to DCs, especially a few companies. In 1998, 60 percent of the world market for seeds was controlled by just 35 companies, and cotton, soybeans, and corn seeds were even more concentrated. Furthermore, do researchers, concentrating largely on DC crops and problems, consider LDC needs? Specifically, will crops such as millet or bananas, vital in the livelihoods of LDCs, receive the attention of DC researchers (FAO 2003:315–324)? Chapter 8 discusses problems of transferring DC technologies to different ecolological zones, including researchers training LDC farmers to benefit from the new technologies.

Although agro-biological research at universities, research institutes, and government may be produced as public goods (some beyond the country's boundaries), most bioresearch is produced by private research firms. For private units, issues of intellectual property rights (IPRs) include how they are enforced and the extent to which firms holding IPRs can exclude others. Without excludability, private units would not recoup their investment, research would languish, and productivity gains and world welfare would slow down. But strengthening IPR leads to concerns. First, IPRs may be too wide, choking off spillovers, subsequent innovation, and diffusion. Second, IPR may prohibit altering a single gene derived from freely accessible germplasm generated by farmers and public efforts over centuries. Third, LDCs believe they should be compensated for contributions farmers and indigenous communities have made to plant genetic material and diversity. Local farmers are especially concerned about genetic use restriction technologies (GURTs) (such as terminator seeds) that restrict the unauthorized use of genetic material by sterilizing the next generation of seeds (FAO 2003:323–324).

A final issue is whether GM crops and livestock reduce biological diversity, environmental safety, and human health, especially given too little research on risks and the lack of funding for continuing research in LDCs. Other potential problems include gene mutation, the switching on of "sleeper" genes; the transfer of allergens, and the transfer of artificially inserted genes to weeds, other plants, or other species (FAO 2003:315, 324–326; Norman 2003).

Virtually all international agricultural development institutions favor transgenics, yet some Western and LDC consumer groups oppose them. The European Union supports the precautionary principle: rejection of biotechnology until science establishes the GM harmless to human health, burden of proof on GM proponents, and

examination of the full range of alternatives, including no action, by an informed and democratic public (World Bank 2003i:94–95). Although DCs may be able to afford GM skepticism, LDC needs are critical enough to err on the side of adopting technologies to expand food production.

Conclusion

If we use the World Bank count, more than 3 billion people and 500 million poor people live in rural areas. Rural inequality is probably less than urban inequality in LDCs as a whole, especially in Afro-Asia. Nevertheless, rural populations have a higher percentage in poverty than urban populations, because of much lower average incomes in rural areas. Most rural poverty is concentrated among agricultural laborers, the landless, and the near landless. Households headed by women form a disproportionate share of the rural poor. Two-thirds of sub-Saharan Africa's rural population (with the highest poverty rate) and more than one-half of Latin America's rural population live in poverty. Asia has the largest absolute number of rural poor but the lowest rural poverty rate among LDC regions.

Output per person outside agriculture as a multiple of that in agriculture, which is eight in Africa and four in Asia and Latin America, was only about two in Europe in the 19th century.

Because of high levels of capital accumulation, technical knowledge, and worker productivity, agricultural output per worker in developed countries is about 25 times as high as in developing countries.

Subsistence farming dominated LDC agriculture in the past. The major goal of the peasant farmer has been not to maximize income but the family's probability of survival. Nevertheless, many peasants, attracted by the potential for improving productivity and living standards, have begun to produce more crops for the market. Many others earn a substantial proportion of their incomes from nonfarm activities.

With globalization, a larger proportion of LDC farm ouput is contracted with multinational corporations.

Food production per capita in the developed countries grew 22 percent from 1962 to 1996 compared to 14 percent in developing countries, with sub-Saharan Africa's average output declining during the same period. Growth rates for both India and China are positive, although generally slower than for LDCs before the late 1970s, and more rapid than other LDCs after liberalization in the late 1970s. Agricultural economists noticed a fall in global average foodgrain production during the late 1980s and early 1990s, but they do not know if foodgrain output per person will grow or decline in the early 21st century.

Entitlement refers to the set of alternative commodities that a person can command in a society using the totality of rights that he or she possesses. An entitlement helps people acquire capabilities (like being well nourished).

Colonial and postcolonial policies biased against agriculture helped contribute to sub-Saharan Africa's decline in food output per capita from the early 1950s to the early 1990s. Africa's food security is low because of substantial fluctuations in

domestic production and foreign-exchange reserves, reductions in food aid, and lack of a Green Revolution in most of the continent.

Inadequate capital (including that for health and social services), lack of technology, low educational and skill levels, the brain drain to urban areas, food price policies, below-market foreign exchange rates, and governmental urban bias contribute to low incomes in rural areas. Land concentration, the bias of technology toward large farmers, and large seasonal variations in income also affect rural poverty rates.

Policies that would increase rural income and reduce rural poverty are manifold. Land reform and redistribution, developing labor-intensive capital equipment, establishing rural credit agencies, agricultural research centers that conduct on-farm tests, institutes to develop and adapt technology for small farmers, an extension service integrated with development agencies, an irrigation authority that conducts careful feasibility studies of proposed projects, and government ministries that provide suitable and timely inputs to farmers are estimable goals. So, too, farm commodity and foreign exchange prices close to market-clearing rates; greater expenditure on social and educational services in rural areas; redistributing land to the rural poor; establishing agro industries, basic consumer goods industries, and other small industries in rural areas; and investment in marketing, transport, and storage facilities for agricultural commodities would improve the lot of the rural poor.

In LDCs, the small family farm is best positioned to have high productivity per hectare, at least if credit, extension, and inputs are readily accessible. Collective farming has not generally increased productivity because of disincentives for work, innovation, and savings.

Production-oriented rural development projects such as small-farmer credit, agricultural innovations and new technology, and improved extension services are likely to reduce agricultural terms of trade and thus reduce rural incomes in the short run. To increase incomes of the rural poor, production-oriented programs need to be combined with policies to improve relative agricultural prices and rural income distribution.

Agriculture biotechnology has substantial potential to increase yields per hectare and per person in developing countries.

The following subjects related to food and agriculture are covered in subsequent chapters: the food-population balance (Chapter 8); disguised unemployment in agriculture and rural–urban migration (Chapter 9); natural resources and the environment (Chapter 13); and the role of trade in agriculture in raising average farm incomes in developing countries (Chapter 17).

TERMS TO REVIEW

- cooperative
- elasticity of supply
- entitlement
- foodgrain (cereals) deficit
- food security index (FSI)
- household responsibility system
- import substitutes
- kulak
- *latifundios*
- *minifundios*

- peasant farming
- property rights
- real exchange rate
- sharecropping
- *ujamaa*
- urban bias

QUESTIONS TO DISCUSS

1. Give arguments in favor of LDCs concentrating their antipoverty programs in rural areas.
2. In what ways does agriculture contribute to economic growth?
3. Why is agricultural productivity in DCs so much higher than in LDCs?
4. How does a peasant economy differ from that of a commercial farm economy?
5. What do you expect the trend in foodgrain output per capita and food consumption per capita to be in LDCs in the next decade? What LDC regions are most vulnerable in the next decade? What LDC regions are most invulnerable in the next decade?
6. Explain and compare India's progress since the early 1950s in increasing average food output and reducing hunger to China's progress.
7. Explain sub-Saharan Africa's negative growth in food output per person between the early 1960s and the late 1990s.
8. What factors contribute to the high incidence of rural poverty in LDCs?
9. What factors contribute to the high incidence of rural poverty among single female heads of households?
10. Indicate the forms of urban bias in LDCs. Give examples of policies of urban bias (or rural bias) in your own country or another one you know well. Has such a policy bias hampered development?
11. What policies are most effective in increasing rural income and reducing rural poverty? What strategies are needed to prevent rural development policies from increasing rural poverty through reduced agricultural terms of trade?
12. Is Soviet and Chinese collectivism (similar to that before 1975) practicable in LDCs? Compare and explain China's agricultural progress in the Maoist period (1949–76) to that of the period after the 1979 agricultural reforms.
13. Identify an LDC whose productivity could be increased by land reform and indicate the type of reform you would advocate.

GUIDE TO READINGS

Eicher and Staatz (1998) is an excellent book of readings on agricultural and food needs, foreign aid, the agricultural transformation, models of agricultural development, the role of induced innovation, agricultural macroeconomic and trade policies, food and entitlements, urban bias, the role of human capital and institutions, market failure, technology development and sustainability, and agriculture in transition. Pinstrup-Anderson (2002:1201–1214) discusses food and agricultural policy

amid globalization. Ruttan (2002:161–184) analyzes sources and constraints on productivity growth in world agriculture. Hayami and Ruttan (1985), although more dated, is still a good source on international agricultural development. Other references include Tomich, Kilby, and Johnston (1995); Sanders, Ramaswamy, and Shapiro (1995); and Singh (1990). Binswanger and Deininger (1997:1958–2005) and Binswanger, Deininger, and Feder (1995:2659–2772) are leading articles on agrarian reform and agricultural policies.

Mosley (2002:695–714) sees development of foodcrop agricultural as pivotal to poverty reduction in Africa. Gaiha and Imai (2004:261–281) stress the importance of negative crop production shocks in the persistence of rural poverty in south India.

Data on food output and imports in DCs and LDCs are in publications from the U.S. Department of Agriculture (1986, 1988, 1999, and subsequent years); FAO (2003b and subsequent years); and Internet sources cited in the last paragraph. For a discussion of measuring food production, consumption, and demand in LDCs, see Evenson and Pray (1994:173–97) and Bouis (1994:199–226).

8 Population and Development

Chapters 8–13 analyze factors that influence economic growth. The next three chapters examine the role of the human population in economic growth. This chapter examines how population growth affects economic development and how fertility affects labor force participation and development. Chapter 9 looks at how population growth affects labor force growth and unemployment, and Chapter 10 at what factors affect labor skills – a major component of population quality.

Between 1980 and 2005, the world's population grew at 1.6 percent per year, from 4.4 billion to 6.5 billion. During the same period, LDC population grew at 2.0 percent per year, from 3.2 billion to 5.3 billion. This chapter explains this phenomenal growth rate and looks at its implications.

Scope of the Chapter

After a brief historical sketch, we consider population growth in DCs and LDCs and by world regions. Next, we explain the rapid but decelerating growth in LDCs by looking at trends in death and birth rates during a period of demographic (population) transition. With this background, we assess the effect of population growth on economic development and review the work of the classical economist Thomas Robert Malthus, who argues that population growth outstrips economic growth. In this connection, we discuss the present and future balance between food and population. Population growth also affects urbanization, labor force growth, and the number of dependents workers must support; we look at all of these elements, too. In the last section, we consider the relative merits of birth control programs and socioeconomic development in reducing population growth.

World Population Throughout History

Throughout most of our existence, population grew at a rate of only 0.002 percent (or 20 per million people) per year. This growth was subject to substantial fluctuations from wars, plagues, famines, and natural catastrophes. However, since about 8000 B.C.E., population growth rates have accelerated. Worldwide population reached one billion in the early 19th century, millions of years after our appearance on earth. The second billion was added about a century later, in 1930. The third billion came along in only 30 years, in 1960; the fourth took only 15 years, in 1975; the fifth, 11 years,

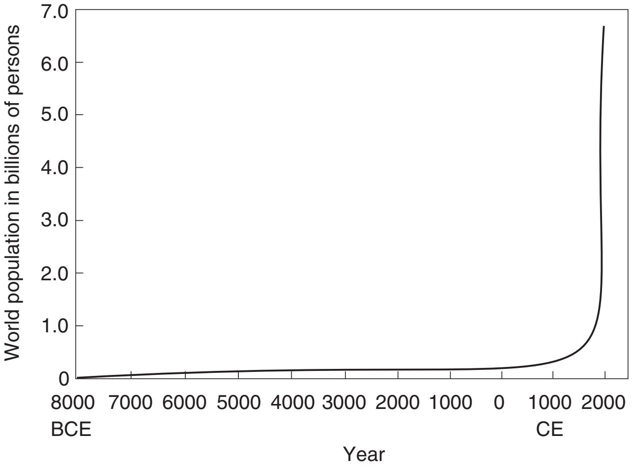


FIGURE 8-1. World Population Growth through History. The graph shows how explosive population growth has been in the last 200 years. World population grew at an annual rate of about 0.002 percent between the appearance of humankind and 8000 B.C.E, 0.05 percent between 8000 B.C.E and 1650, 0.43 percent between 1650 and 1900, 0.91 percent between 1900 and 1950, 1.93 percent between 1950 and 1980, and is growing 1.46 percent per year between 1980 and 2010. *Sources:* Based on Ehrlich, Ehrlich, and Holdren 1977:183; Thompson and Lewis 1965:384; Carr-Saunders 1936:15–45; U.S. Bureau of the Census 1978:15; U.S. Bureau of the Census 1979:17; U.S. Bureau of the Census 2004; World Bank 1987i:254–255; World Bank 1994i:210–11; Population Reference Bureau 2003.

in 1986; the sixth billion took 12 years, in 1998 (see Figure 8-1); and with population growth deceleration the seventh billion is expected in 2013. Eighty-one percent of the world's population lives in LDCs.

Population Growth in Developed and Developing Countries

Figure 8-2 indicates the great variation in birth rates, death rates, and population growth among nations. Countries can be roughly divided into three groups: (1) the DCs and transitional economies, consisting of countries in Europe, North America, Australia, New Zealand, and Japan, with population growth rates below 0.8 percent per year; (2) several countries from East and Southeast Asia and Latin America, including Argentina, Chile, Cuba, China, Taiwan, South Korea, Thailand, Vietnam, Indonesia, and Sri Lanka, with crude death rates below 9 per 1,000 and annual growth rates between 0.8 and 1.8 percent, whose demographic behavior is closer to DCs than to LDCs; and (3) the bulk of the LDCs – most of Africa, Asia, and Latin America, with population growth rates of at least 1.9 percent per year.

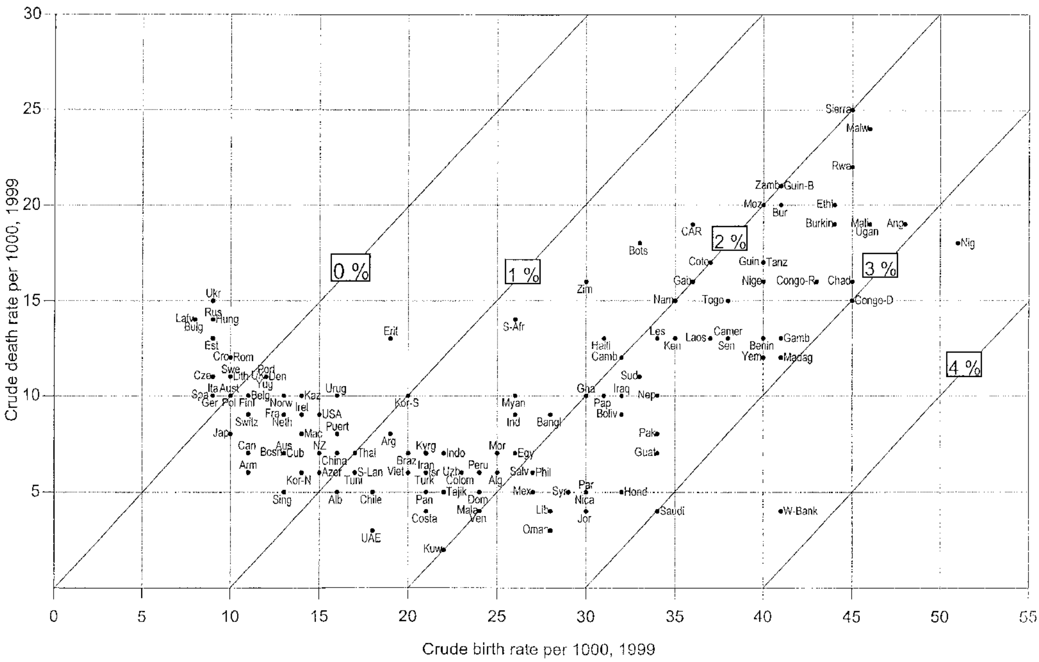


FIGURE 8-2. Population Growth in Developed and Developing Countries. A population growth rate of 0.8–1.8 percent yearly roughly divides the DCs from the LDCs.
Source: World Bank 2001h:44–45.

A major distinction between the three groups is the birth rate. (Following the conventional use, **crude birth and death rates** denote a number per 1,000, *not* percent.) The DCs' and transitional countries' crude birth rate are no more than 16 per 1,000. Most developing countries have birth rates of at least 25 per 1,000. Countries in category 2 generally fall between these two figures.

World Population: Rapid but Decelerating Growth

The world's population is unevenly distributed geographically. Figure 8-3 shows regional distribution in 1950 and 1994, and projected distribution in 2025. The most rapidly growing regions are in the developing world: Asia, Africa, and Latin America. Their share of the global population increased from 70.0 percent in 1950 to 81.5 percent in 2000, and is expected to reach 85.1 percent in 2025. From 1950 to 2000, Asia, Africa, and Latin America grew at a rate of 2.1 percent yearly, a rate that doubles population in 33 years. Such growth is unprecedented in world history.

Africa is expected to have the most rapid growth, 2000 to 2025, 2.4 percent yearly. This rate, the same as its present rate, is the result of a traditionally high crude birth rate, 38 per 1,000 (with only 26 percent of married women using contraceptives), and a crude death rate, 14 per 1,000. The death rate plummeted from 1930 to 1990

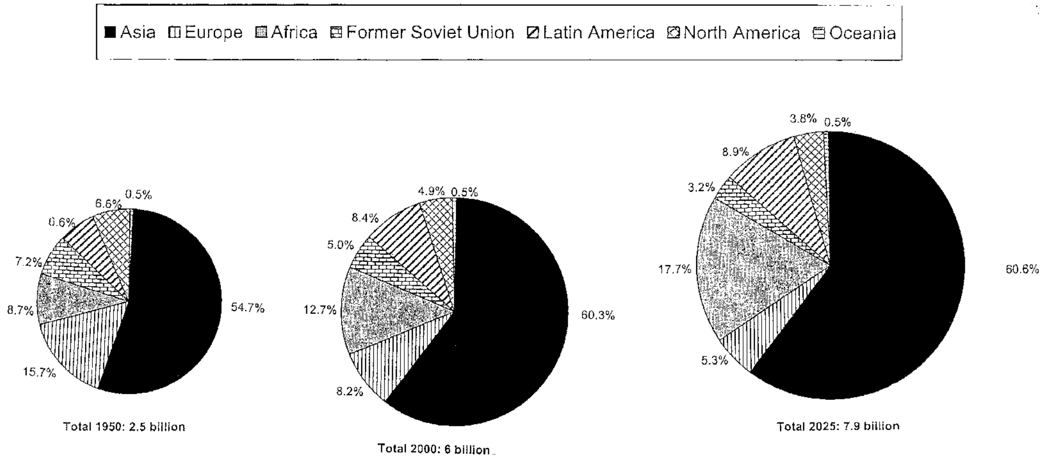


FIGURE 8-3. World Population by Region: 1950, 2000, and 2025 (projected). Asia's, Africa's, and Latin America's share of the world population is increasing over time. *Sources:* U.N. Department of Economic and Social Affairs 1976:115; Ehrlich, Ehrlich, and Holden 1977:200–201; Population Reference Bureau 2000; World Bank 2001h:44–45; Bongaarts 2001.

because of improvements in health, nutrition, medicine, and sanitation. Although growth in Latin America and the Caribbean until 2025 is projected at 1.3 percent annually, its present yearly rate, 1.7 percent per year, is based on 23 births and 6 deaths per 1,000. Although Asia's annual growth, 1.3 percent (birth rate of 20 and death rate of 7), will decline to 1.1 percent in the 25 years, 2000 to 2025, it is by far the most heavily populated region, with more than 60 percent of the world's people.

Population size is a factor in shifting political and military power from the North Atlantic to Asia and the Pacific. The percentage of the world's people living in North America and Europe (excluding the former Soviet Union) declined from 23.0 percent in 1900 and 29.5 percent in 1950 to 18.0 percent in 2000, and is expected to decrease to 12.3 percent in 2025. Six Asian countries plus the Russian Federation (partly in Asia) are on the list of the 10 largest countries in the world. In 2000, China and India constituted 41.3 percent of the world's population (Table 8-1).

Most of the large increases in population between 1994 and 2025 are expected in the developing world. India's addition to population during this period should exceed U.S. total population in 2025. India, China, Nigeria, Indonesia, Pakistan, and Ethiopia (listed in order of absolute growth) will each grow more from 2000 to 2025 than the United States, the world's third most populated country. Bangladesh, Congo (Kinshasa), Iran, and Mexico follow in order of growth during these years (International Institute for Applied Systems Analysis 2004).

Although the world has witnessed unprecedented population growth during the last 50 to 60 years, faster growth than any other 50- to 60-year period, the rate of growth has been decelerating since its peak rate of 2.3 percent yearly in 1960 to

TABLE 8-1. The 10 Countries with the Largest Population: 2000 and 2025 (projected)

Country	Total population, 2000 (millions) (world ranking in parentheses)	Projected population, 2025 (millions) (world ranking in parentheses)
China	1261 (1)	1464 (1)
India	1014 (2)	1377 (2)
U.S.	275 (3)	338 (3)
Indonesia	225 (4)	301 (4)
Brazil	173 (5)	201 (7)
Russia	146 (6)	136 (9)
Pakistan	142 (7)	213 (5)
Bangladesh	129 (8)	177 (8)
Japan	127 (9)	126 (13)
Nigeria	123 (10)	204 (6)
Mexico	97 (11)	134 (10)

Source: U.S. Bureau of the Census 2004c.

1.3 percent in 2005 to an expected 0.8 percent in 2025 and 0.4 percent in 2050 (Figure 8-4). Factors discussed later, such as urbanization, greater economic aspirations, increased female education and labor force participation, and more accessibility to family planning, have contributed to the falling population growth rate from 1960 to the present. Indeed, Walter Rostow (1998:1) sees the population spike (growth)

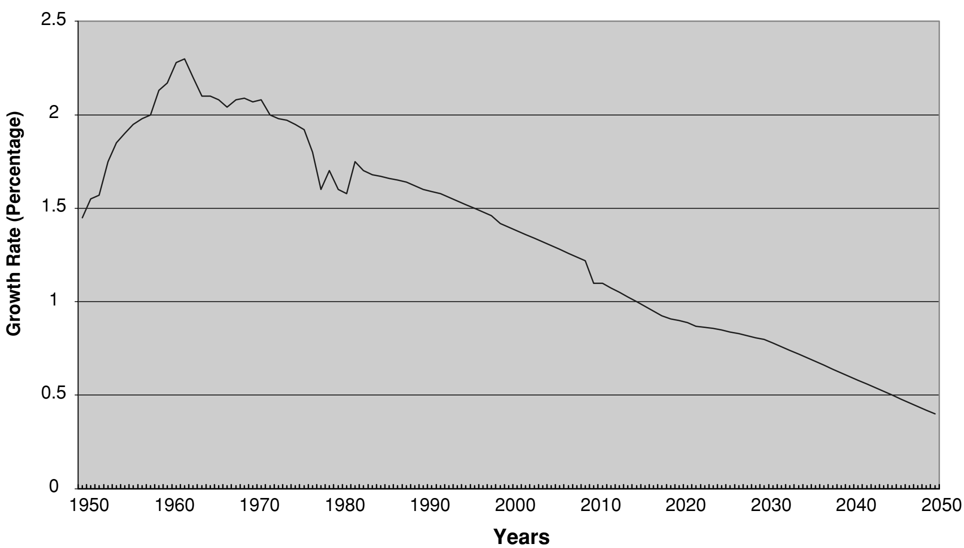
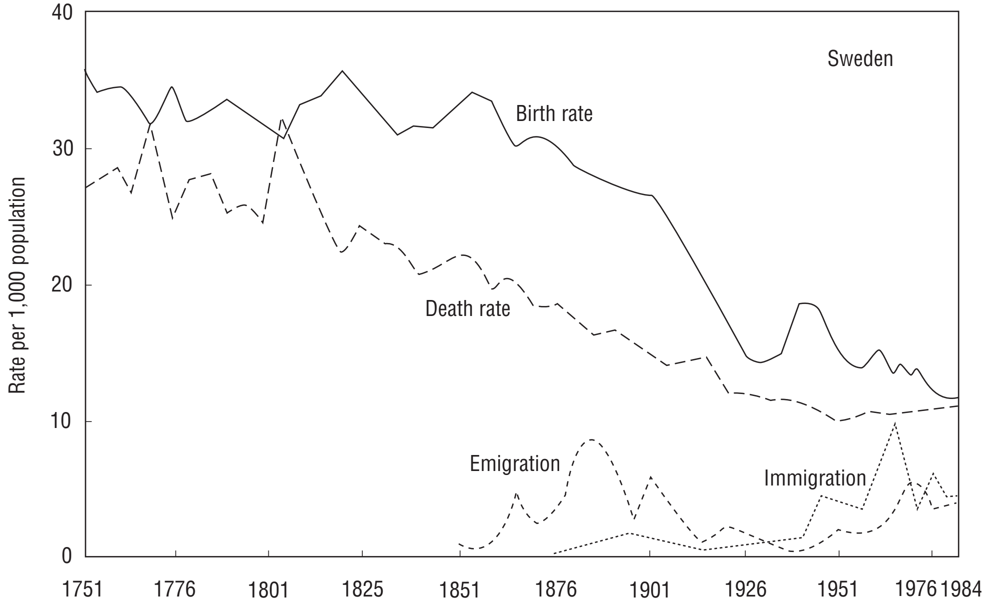


FIGURE 8-4. World Population Growth Rate: 1950–2050. *Source:* U.S. Bureau of the Census: 2004a.



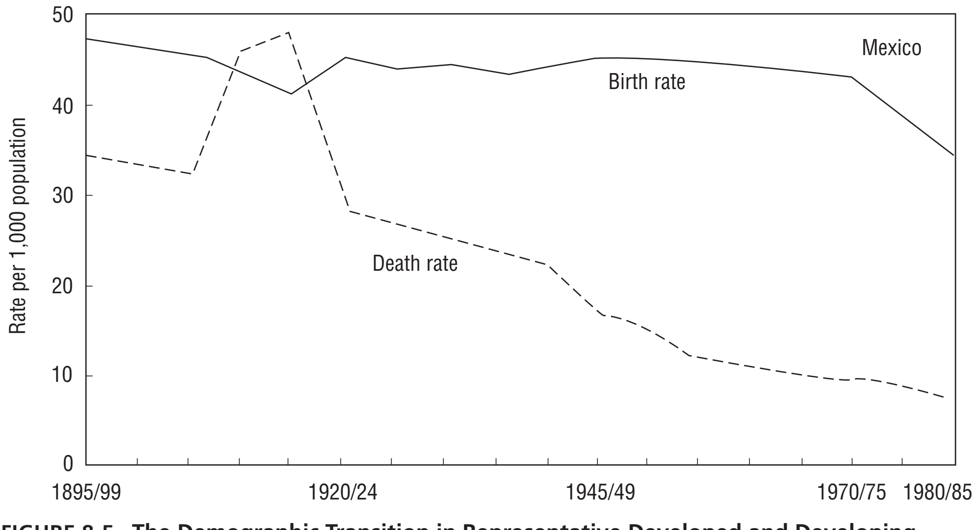


FIGURE 8-5. The Demographic Transition in Representative Developed and Developing Countries. The following shows the transition from a preindustrial, stable population (stage 1) to a late expanding population (stage 3) for both developed (Sweden) and developing (Mexico) countries, and to a later, modern stable population for the DC.

Stage 1 – early stable (Sweden before 1810, Mexico before 1920). Birth and death rates are high. Death rates vary widely because of famines, epidemics, and disease. The average life expectancy is 30–35 years.

Stage 2 – early expanding (Sweden, c. 1810–65; Mexico, 1920–70). Birth rates remain high. Death rates fall rapidly as a result of advances in health, medicine, nutrition, sanitation, transportation, communication, commerce, and production. Because techniques that reduce deaths can be dispersed more quickly to recently modernizing countries, the decline in the death rate is steeper in developing countries than in developed countries. Stage 2 is the period of most rapid population explosion. Stage 2 may take 50–100 years in the developed country and 15–50 years in the developing country.

during the period 1776 to 2176 as a special case of humankind's history, which has generally been near 0 percent.

The Demographic Transition

In the ancient and medieval periods, famine, disease, and war were potent checks to population growth throughout the world. During the Black Death (1348–50), for example, Europe lost one-fourth to one-third of its population.

After 1650, the population of Western countries increased more rapidly and steadily. The rate increased first in England (especially from 1760 to about 1840), then in other parts of Western Europe, and later in several areas Europeans had settled – the United States, Canada, Australia, and New Zealand. However, between 1930 and the present, population growth rates declined in these Western countries in about the same order in which they had increased (Thompson and Lewis 1965:396–418). By contrast, except for China and Japan, non-Western countries did not experience initial rapid population growth until after 1930.

The **demographic transition** is a period of rapid population growth between a preindustrial, stable population characterized by high birth and death rates and a later, modern, stable population marked by low fertility and mortality. The rapid natural increase takes place in the early transitional stage when fertility is high and mortality is declining. Figure 8-5 illustrates the four-stage demographic transition theory.

STAGE 1: HIGH FERTILITY AND MORTALITY

We were in this stage throughout most of our history. Although annual population growth was only 5 per 10,000 between 1 and 1650 C.E., growth in 18th- and 19th-century Western Europe was about 5 per 1,000, and birth and death rates were high

FIGURE 8-5 (*continued*).
Stage 3 – late expanding (Sweden, c1865–1980; Mexico, 1970–?). Death rates continue to decline. By the end of the period, average life expectancy is at least 70 years. Birth rates fall rapidly, reflecting not only more effective contraceptives and more vigorous family planning programs, but also the increased cost of children, enhanced mobility, higher aspirations, and changing values and social structure associated with urbanization, education, and economic development. Population growth is positive but decelerating. Except for such countries as Argentina, Chile, Cuba, China, Thailand, Vietnam, Indonesia, and Sri Lanka (and recent members graduating from the middle income category, such as Taiwan and South Korea), which have birth rates of 25 per 1000 population or less, most developing countries (including Mexico) are at the early portion of stage 3. Developed countries are further along in stage 3, but only a few (noted later) have finished stage 3. Developed countries that have completed this stage have taken at least 50 years to do so.
Stage 4 – late stable (Sweden, c. 1980–, Mexico?) Both death and birth rates are low and nearly equal. Birth rates however may fluctuate. Eventually the population is stationary. Only a few countries in Europe (Germany, Austria, Sweden, Denmark, Belgium, Britain, Greece, Italy, Spain, Russia, Ukraine, and several East-Central European countries) are close to equality in birth and death rates. *Source:* Merrick 1986:9.

and fairly similar. High mortality in North America is not so historically remote, as the following quote illustrates:

> Abraham Lincoln's mother died when she was thirty-five and he was nine. Prior to her death she had three children: Abraham's brother died in infancy and his sister died in her early twenties. Abraham's first love, Anne Rutledge, died at age nineteen. Of the four sons born to Abraham and Mary Todd Lincoln, only one survived to maturity. Clearly, a life with so many bereavements was very different from most of our lives today. (Heer 1975:56)

High mortality rates were inevitable in the absence of modern sanitation, medicine, industry, agriculture, trade, transportation, and communication. Premodern socioeconomic groups, such as village communities, tribes, lineages, and principalities, were small and largely self-sufficient. Even so, food shortages brought on by floods, droughts, insect plagues, and warfare, although confined to a small locality, were very serious. Roads and vehicles for transporting surplus food from other areas were rarely adequate to the need during these times.

For such populations to survive, fertility must at least match mortality. Thus, it is not surprising that prevailing ideology, values, religion, and social structure in the ancient, medieval, and early modern world supported high birth rates. Large families were considered a blessing from God. A woman gained acceptance in her husband's family, as well as her community, by bearing children. However, values and institutions supporting high fertility changed slowly as mortality rates declined. We bear the burden of these outmoded views today, long after they have lost their original function.

Preindustrial Western continental Europe had lower birth and death rates than have 20th-century developing countries in a comparable stage of development (shown in Figure 8-5). Early and near-universal marriage are practiced in these developing countries in contrast to the 19th-century European pattern of late marriage or sometimes no marriage at all (Teitelbaum 1975:420–425). This difference accounts, in part, for the LDCs' higher birth rates.

STAGE 2: DECLINING MORTALITY

This stage began in 19th-century Europe as modernization gradually reduced mortality rates. Food production increased as agricultural techniques improved. The introductions of corn and the potato, either of which could sustain a large family on a small plot of land, were especially important at this time. Improvements in trade, transportation, and communication meant people were less vulnerable to food shortages. Death from infectious diseases, such as tuberculosis and smallpox, declined as nutrition and medical science improved, and after the introduction and adoption of soap, cheap kitchen utensils, and cotton clothing led to better personal hygiene. Drainage and land reclamation reduced the incidence of malaria and respiratory diseases (Ehrlich, Ehrlich, and Holdren 1977:186–192).[1]

[1] Raouf Boucekkine, David de la Croix, and Omar Licandro (2003:401–418) offer an alternative explanation for the relationship between mortality decline and early modernization. For them,

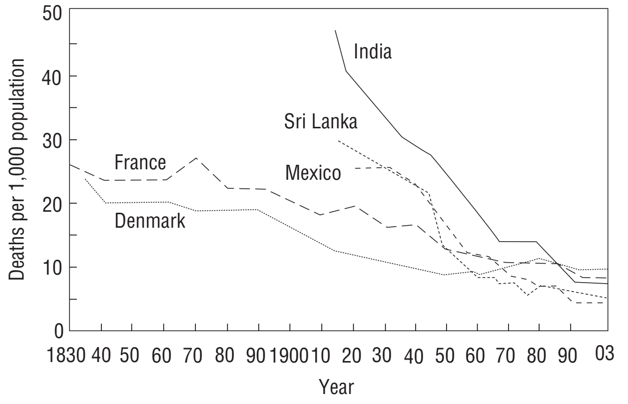


FIGURE 8-6. Changes in Death Rates (selected countries). Mortality rates declined in LDCs faster than in DCs. *Sources:* Thompson and Lewis 1965; U.N. 1976; World Bank 1979i; World Bank 1982i; World Bank 1988i; World Bank 1992i; World Bank 1994i; World Bank 1995i; World Bank 2003h.

Mortality rates decreased about a century earlier in developed countries than in developing countries. However, today's LDCs have lowered their mortality rates much more rapidly once they began. Figure 8-6 indicates a gradual, long-term reduction in Western death rates, with Denmark's declining from 27 to 11 and France's from 26 to 12, over a period of 130 years (1830–1960). Sri Lanka's and India's mortality rates, however, decreased sharply from 1915 to 2003 – Sri Lanka's from 30 to 6, and India's from 47 to 8 (infants 500 to 66), per 1,000 population. These rapid declines are based on techniques that the developed countries acquired over decades – improved agriculture, transport, commerce, medicine, sanitation, and so forth.

Why have some LDC death rates dropped to 5–9 per 1,000, below those of many industrialized countries? With a stable population, these mortality rates would be consistent with a life expectancy of more than 100 years! These low death rates are possible because birth rates higher than replacement levels create an age structure more youthful than exists in a stable population (one only replacing itself). (Figure 8-10 shows that DCs, with a more stable population, have an older population than the LDCs.) If the death rates for specific age groups were applied to a stable population, death rates in LDCs would be, in fact, in excess of 10 per 1,000.

In the late 1930s, average life expectancy in developing countries was 32 years compared to 56 in developed countries. Life expectancy in LDCs increased to 63 in 1994, compared to 76 in the developed countries (Table 8-2). Since World War II, mortality rates have dropped sharply in developing countries because of declines in infant mortality and better medical treatment for major infectious diseases – malaria, cholera,

"improvements in longevity during the seventeenth and eighteenth centuries caused the acceleration in growth rates at the dawn of the modern age" (ibid, p. 402). Higher life expectancy increased incentives to invest in human capital, which exerted a positive effect on economic growth, spurring the Industrial Revolution.

TABLE 8-2. Life Expectancy at Birth, by Region, 1935–39, 1950–55, 1965–70, 1975–80, 1985–90, 1994, and 2003

	Years						
Region	**1935–39**	**1950–55**	**1965–70**	**1975–80**	**1985–90**	**1994**	**2003**
South Asia	30	41	46	49	56	60	62
East Asia	30	45	55	61	71	71	72
Africa	30	36	43	47	54	55	52
Latin America	40	52	60	64	68	68	71
China	n.a.[a]	48	60	64	70	70	71
Developing countries	32	42	49	54	61	63	65
Developed countries	56	65	70	73	76	76	76

[a] Not available.

Sources: Morawetz 1977:48; World Bank 1980b:442–447; Sewell, Tucker, and contributors 1988:246; Population Reference Bureau 1994; Population Reference Bureau 2003.
For earlier comparisons, Coale (2003:114) states

> Prior to the seventeenth century, average durations of life in excess of 30 or 35 years were exceptional, and life expectancies of 20 to 30 years were the norm. Average length of life increased markedly during the nineteenth century in [Western countries]. By 1900, expectation of life in these countries was 45 to 50 years.

yellow fever, typhoid fever, smallpox, tuberculosis and other respiratory ailments. Despite such improvements, Figure 8-7 shows that people still live longer in rich countries. The positive relationship between life expectancy and income per capita persists until income reaches a certain level, perhaps corresponding to some critical level of health practice and economic productivity. Beyond this level, there appears to be little, if any, positive relationship between average income and life expectancy. Accordingly, although developed, and a few developing, countries have a life expectancy figure of over 70 years, the only countries with a life expectancy between 35 and 70 years are developing countries.

Africa's fall in life expectancy from the 1990s to the first decade of the 21st century is an anomaly among LDCs. The explanation for this fall is deaths from the HIV/AIDS epidemic. Sub-Saharan Africa had an adult HIV/AIDS prevalence rate of 9.0 percent in 2001. Indeed, Botswana, a neighbor of South Africa touted as a development success in 1990, is expected to have a life expectancy of 26.7 years in 2010 compared to what would have been 74.4 years without HIV/AIDS. (Lampley, Wigley, Carr, and Collymore 2002:10–17; see Chapter 10). Still, Africa and other LDC regions will not experience mortality rates matched by fertility rates for a few decades.

One element in this decades-long process – values and institutions supporting high fertility rates – is quite resistant to change. It is much easier in the contemporary world to lower a mortality rate than to change a value system that promotes fertility. The technology needed to increase life expectancy is widely available to all developing

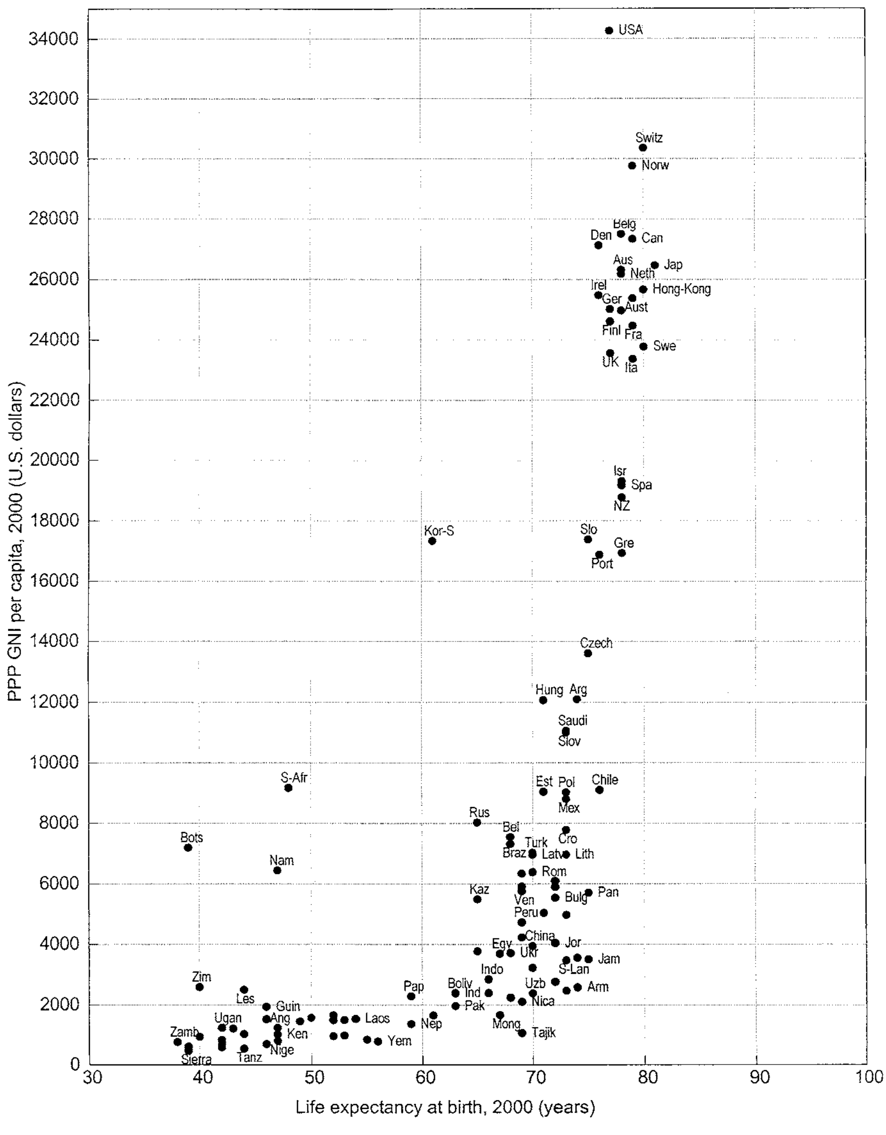


FIGURE 8-7. Life Expectancy in Developed and Developing Countries. Among LDCs, life expectancy increases with average income. Beyond a certain income level, there is little relationship between average income and life expectancy. Data from World Bank 2002i:18–20, 122–124.

countries. They have access to the accumulated improvements in health, medicine, agriculture, and industry of the 19th century and the much more radical innovations of the 20th century – immunization, pesticides, high-yielding grain varieties, and so on. To illustrate our thesis, the Allied powers (in the 1940s) and the World Health Organization (in the 1950s) sprayed a new insecticide, DDT, over large areas of Sri Lanka to destroy malaria-carrying mosquitoes. The cost was less than $2 per head. Malaria was largely eradicated, contributing in part to a steep decline in Sri Lanka's death rate from 21.7 per 1,000 in 1945 to 14.6 in 1948 to 9.1 in 1959 (see

Figure 8-6). Because most people desire health and long life, new life extension methods are easily and quickly adopted (Teitelbaum 1975:420–425).

STAGE 3: DECLINING FERTILITY

Stage 3, declining fertility, of the demographic transition did not begin in Europe for several decades, and in some instances, a century, after the beginning of declining mortality in stage 2. However, in developing countries, stage 3 has followed much more rapidly stage 2. Nevertheless, stage 2 was more explosive, as the initial birth rate was higher and the drop in death rate steeper.

What are the most important determinants of fertility decline? There are two competing answers. Organized **family-planning programs**, which provide propaganda and contraceptives to reduce the number of births, is one answer. The other is motivating birth control through the more complicated processes of education, urbanization, modernization, and economic development. This view is expressed in the slogan of the 1974 World Population Conference held in Bucharest, "Development is the best contraceptive."

Those who support family-planning programs point to the substantial decline in the world's **total fertility rate (TFR)** – the number of children born to the average woman during her reproductive years – from the 1960s to the 1990s, even in the poorest developing countries. To the surprise of many demographers, the TFR of most of 113 developing countries, and all 35 developed countries, decreased, so that the world's TFR dropped from 4.6 births per woman in 1968 to 4.1 in 1975 to 3.6 in 1987 to 3.1 in 1995 to 2.8 in 2003 (World Bank 1988i:276–277; Hendry 1988:14; Population Reference Bureau 1995; Population Reference Bureau 2003). In the early 1960s, a number of developing countries began major family-planning programs. Amy Ong Tsui and Donald J. Bogue (1978:1–55) suggest that declines in crude birth rates in developing countries were strongly associated with substantial, organized, family-planning efforts.

However, other evidence indicates that fertility also decreases with economic development, modernization, urbanization, and industrialization. For example, Figure 8-8 indicates that among developing countries (those with a 2000 GNI per capita of less than $15,000), average income and fertility are negatively related; that is, low income is associated with high fertility rates. The relative importance of family-planning programs versus economic development for population control is discussed in a later section on strategies for reducing fertility.

THE DEMOGRAPHIC TRANSITION IN THE EARLY 21ST CENTURY

In the first decade of the 21st century, most countries were still in stage 3 of the demographic transition. Except for sub-Saharan Africa's recent experience, virtually all countries experienced some decline in mortality. Outside of war-disrupted Afghanistan, no country outside Africa had a death rate more than 15, substantially below mortality in stage 1. We cannot always identify precisely what stage a country is

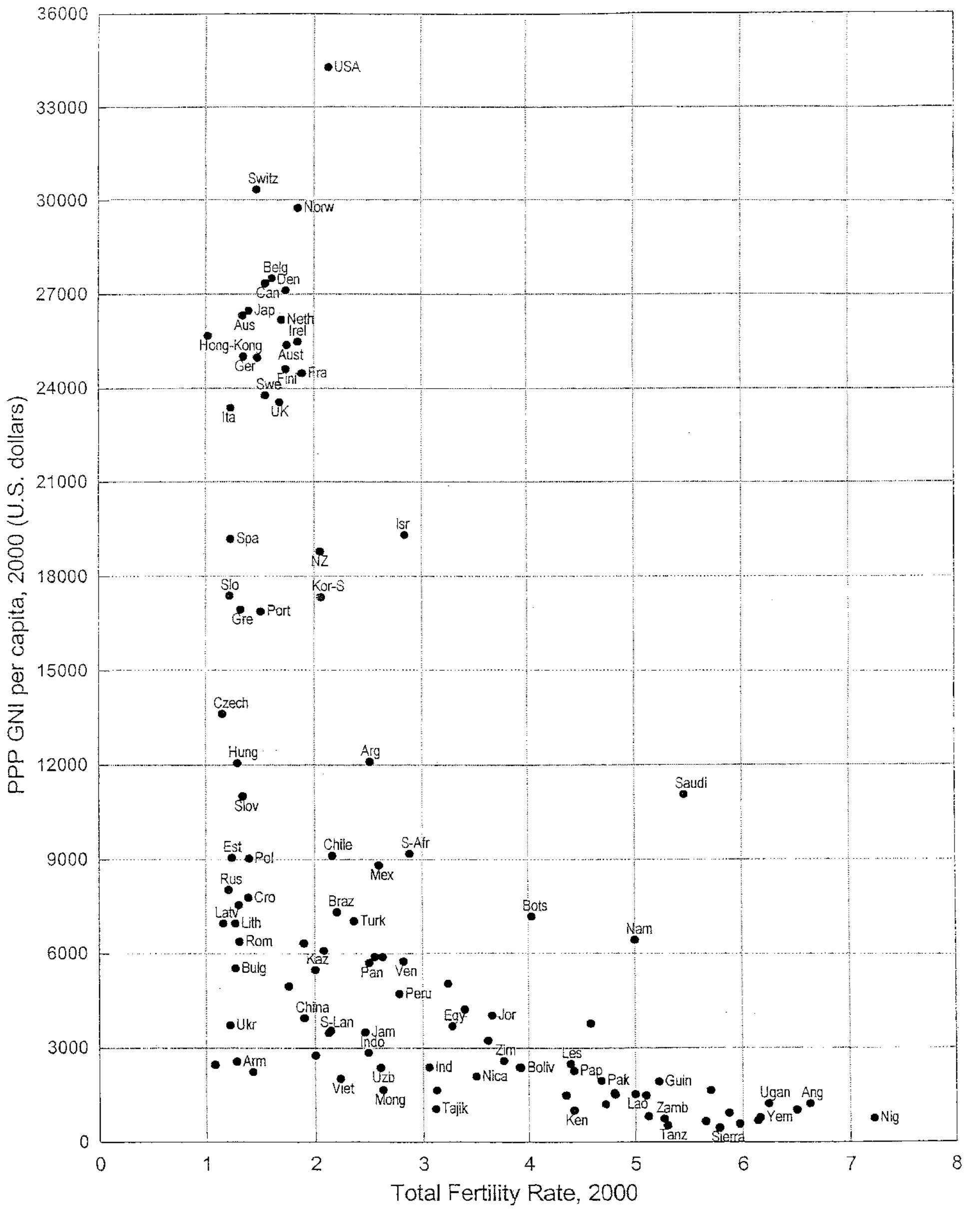


FIGURE 8-8. Fertility Rates in Developed and Developing Countries. Fertility rates decline as average income rises. *Source:* World Bank 2002h:110–112.

in. However, even the most demographically backward countries of Asia and Latin America are in the latter part of stage 2, if not in the earlier part of stage 3. By contrast, only Germany, Austria, Sweden, Denmark, Belgium, Britain, Greece, Italy, Spain, Russia, Ukraine, and Bulgaria were in stage 4 – low, stable population growth – with virtually equal fertility and mortality rates.

BEYOND STAGE 4: A STATIONARY POPULATION

World Bank projections indicate that most developing countries will not reach an exact replacement rate before 2020 to 2040. At this rate, the average woman of child-bearing age bears only one daughter – her replacement in the population. However, **population momentum** or growth continues after **replacement-level fertility** has been reached because previous fertility rates have produced an age structure with a relatively high percentage of women in or below reproductive age. Thus, most developing countries will not have a **stationary population** (where growth is zero) until 2075 to 2175, about 5 to 14 decades after attaining exact replacement level.

Let us examine this process more fully. Take as an example China, a country with a population of 1,117 million and a total fertility rate of 5–6 in the early 1970s that dropped precipitously to 1.9 in 2000, just below replacement level.

China's population in 2000 was 1,262 million. If China maintains the same fertility level, population will grow to 1,508 million by 2050, and 1,570 million by 2105, the year a stationary population level is reached. The LDCs can expect substantial future population growth even if measures are undertaken immediately to reduce fertility rates (Merrick 1986:6; World Bank 1980i:142–143, 162–163; World Bank 1988i:274–275; Frejka 1973:15–23).

Is Population Growth an Obstacle to Economic Development?

Does population growth hamper economic development, as the classical economist Thomas Robert Malthus contends, or does population spur innovation and development, as Julian L. Simon argues? This section examines some possible costs of high fertility rates and rapid population growth, including (1) diminishing returns to natural resources, with an adverse impact on average food consumption; (2) increased urbanization and congestion; (3) a higher labor force growth rate and higher unemployment; and (4) a working population that must support a larger number of dependents.

POPULATION AND FOOD

The Malthusian view. The best-known work on the food and population balance is Malthus's *Essay on the Principle of Population* (1798, 1803). The essay, written in reaction to the utopian views of his father's friends, was one reason economics came to be referred to as the dismal science. Malthus's theory was that population, which increased geometrically – 1, 2, 4, 8, 16, 32, and so on – outstripped food supply, which grew arithmetically: 1, 2, 3, 4, 5, 6. For Malthus, a clergyman as well as an economist, the only check to population growth would be wars, epidemics, infanticide, abortion, and sexual perversion, unless people practiced moral restraint, that is, later marriages and abstention. Even then he believed living standards would remain at a subsistence level in the long run (Thomas Robert Malthus, *Essay on the Principle of Population*, 1963).

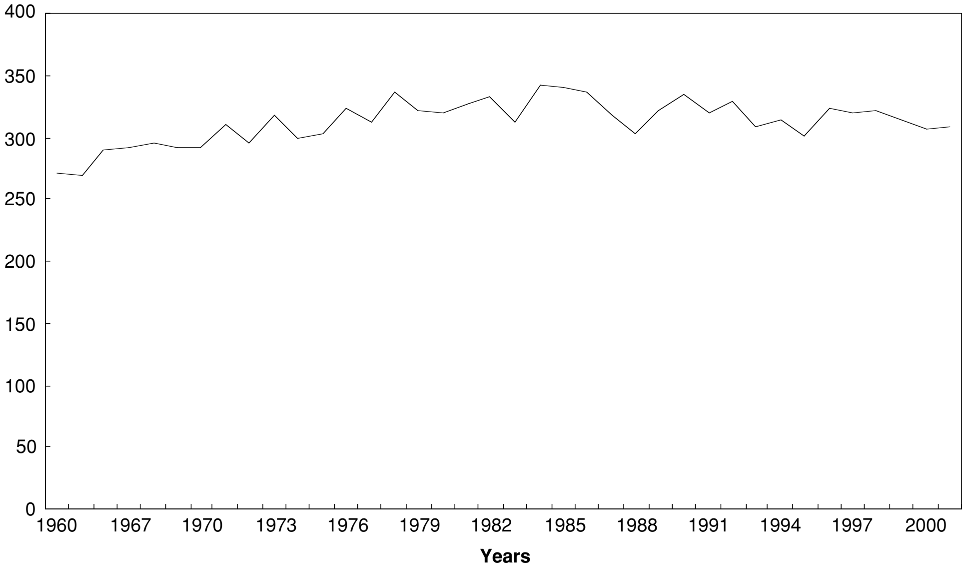


FIGURE 8-9. World Grain Production per Person, 1960–2001 (kg). *Source:* FAO.

However, Malthus failed to envision the capital accumulation and technical progress that would overcome diminishing returns on land. Rough estimates are that between 1650 and 2005, the world's food production multiplied 14 to 16 times, whereas population increased only 9 times. The world's cultivated land probably doubled or tripled during this period, largely from increases in cultivation in the United States, Canada, Australia, and New Zealand. Output per hectare probably increased at least fourfold during these 355 years (most during the last 100 years) through irrigation, multiple cropping, improved seeds, increased use of commercial fertilizer, better farm implements, and other agricultural innovations. Malthus also underestimated the extent to which education, economic modernization, industrialization, urbanization, and improved contraception would reduce fertility rates.

Present and future population–food balance. Some scientists believe the Malthusian population and food relationship is applicable to the contemporary world. For them, the rapid population growth of LDCs since World War II confirms Malthus's thesis. Few economists saw statistical evidence of a return of the Malthusian specter before the 1990s, but then many economists were startled by the line, similar to Figure 8-9, that suggested that the long-term increase in foodgrain (rice, wheat, and coarse grains) output per person, especially prominent since World War II, was beginning to fall in the mid-1980s. The optimist Tim Dyson (1994:398) and the pessimist Lester R. Brown agree on what happened to foodgrain output per person during the late 1980s and 1990s but disagree on how to interpret it. Brown notes the reduced effective demand for foodgrain in developing areas such as Africa and Latin America, which faced falling average incomes in the 1980s, as well as the earth's rapid population

growth, increasing average costs from and diminishing returns to growing biochemical energy and fertilizer use, less sustainable farming practices, and decelerating expanded agricultural hectarage reaching the limits of the earth's carrying capacity. Dyson notes a decline in average grain production after peak production in the mid-1980s, even when calculated using five-year moving averages, in all regions except Asia. Still, the declining trend lines in sub-Saharan Africa, Latin America, and North America since the 1980s, suggest reason for concern. Moreover, the decline in fish catches per capita outside China since 1990 (Chapter 7), and the leveling off in soybean production per person since the late 1980s, reinforce the pessimistic scenario based on grain output data (Renner et al. 2003; Brown 1994a:177–197, 248–251; Dyson 1994:397–411; Brown, Platt, Kane, and Postel 1994:26–41). However, for Dyson, low world grain prices, and reduced grain price supports, the withdrawal of cultivated land, and the reduced subsidized overseas sales by the largest grain producer, the United States, were responsible for the lion's share of the declining trend since the 1980s. Indeed, if you exclude sub-Saharan Africa (see Figure 7-1), food output per person has not fallen.

Dennis Avery (1995:A12) thinks that the fall in foodgrain output per capita in the early 1990s merely reflects a shift from the consumption of grains to that of "luxury" food like meat, milk, and eggs. Indeed meat output per person has steadily increased from 1950 to 2000 (Renner et al. 2003:31), suggesting that with economic growth, the world's population substitutes expensive for cheaper foods.

Thus, we need to ask whether average food production will rise or fall through the first two decades of the 21st century when world population growth is expected to increase 1.3 percent yearly? Major studies of world food supply disagree about whether, with present trends in resource availability and environmental limitation, together with expected technological improvements, food increases should stay ahead of population growth.

Simon's view. Some economists' optimism about technological change makes them not only believe that output will continue to grow more rapidly than population but also that population growth stimulates *per capita* output growth. Julian Simon (1979:26–30) argues that the level of technology is enhanced by population. More people increase the stock of knowledge through additional learning gains compounded by the quickening effect of greater competition and total demand spurring "necessity as the mother for invention." Division of labor and economies of large-scale production increase as markets expand. In short, as population size rises, both the supply of, and demand for, inventions increase, thereby increasing productivity and economic growth. Because population growth spurs economic growth, Simon's model requires no government interference and is consistent with a **laissez-faire** population policy.

Although Simon criticizes the Club of Rome's *Limits to Growth* (Chapter 13) for underestimating technical change, he goes to the other extreme by assuming that population growth causes technological progress. Indeed, Simon's assumption that technological progress arises without cost contradicts the second law of thermodynamics,

which states that the world is a closed system with ever-increasing entropy or unavailable energy (see Chapter 13). Moreover, Simon's model, like that of the Club of Rome, yields the intended results because they are built into the assumptions. Simon's premise (1986:3) is that "the level of technology that is combined with labour and capital in the production function must be influenced by population directly or indirectly" (see reviews by Arndt 1987:156–158; Ermisch 1987:175–177).

Food research and technology. There *are* reasons to be concerned about the Malthusian balance in LDCs. About 80 percent of the world's expenditures on agricultural research, technology, and capital are made in developed countries. Vernon Ruttan's study (1972) indicates that these expenditures bear directly on the greater agricultural labor productivity in DCs. This greater productivity has little to do with superior resource endowment. To be sure, some agricultural innovations used in DCs can be adapted to LDCs. However, these innovations must be adapted carefully in the developing countries. Usually, LDCs need their own agricultural research, as many of their ecological zones are quite different from those of North America and Europe.

The discovery of improved seed varieties and the improvement of agricultural methods in third-world countries are mainly the work of an **international network of agricultural research centers**, which includes **the Consultative Group on International Agricultural Research (CGIAR)** in partnership with numerous National Agricultural Research Systems and nongovernmental organizations (NGOs). The principal food commodities and climate zones of the developing world have been brought into this network. Such donors as the World Bank, the U.N. Development Program, the Ford Foundation, the Rockefeller Foundation, the U.S. Agency for International Development, and agencies of other governments have financed the network. Its goals are to continue and extend the work generally known as the **Green Revolution –** the development of high-yielding varieties (HYVs) of wheat and rice. These HYVs of grains are an example of **global public goods** that benefit all nations; other examples include polio and smallpox vaccinations, the campaign against river blindness, the Montreal Protocol to reduce ozone depletion, and the Kyoto Protocol on reducing greenhouse gases. Prototypes of international agricultural research centers are International Center for the Improvement of Maize and Wheat (CIMMYT), the Mexican institute, founded in 1943, where a team led by Nobel Peace Prize–winner Norman Borlaug developed dwarf wheat; and International Rice Research Institute (IRRI) in the Philippines, founded in 1960, which stresses research on rice and the use of multiple cropping systems. Other centers concentrate on genomics, plant genetics, agroforesty, semiarid tropics, the tropics, dry areas, irrigation management, aquatic resources, livestock, food policy, and rice in West Africa (CGIAR 2004).

Economists in India, Pakistan, the Philippines, and Mexico argue that foodgrain growth would not have kept up with population growth in the last four decades or so of the 20th century without the improved packages of high-yielding seed varieties, fertilizers, pesticides, irrigation, improved transport, and extension. Indeed, yield increases and increased cropping intensity but not arable land expansion form the lion's share of sources of growth in LDC crop production from 1960 to 2005, and

are expected to dominate growth from 2005 to 2030 (FAO 2003:126).[2] Chapter 7 indicates that farm yield increases reduce poverty in Afro-Asia but not in highly unequal Latin America.

Michael Morris and Derek Byerlee (1998:471) contend that "with the potential of the Green Revolution technologies now largely exhausted, new technologies will be needed to ensure continuing productivity growth in Asia's intensely cultivated cropping systems." Continuing technological improvements will require changing the organization of agricultural research and extension, and the design and implementation of technical change (ibid.). Moreover, the international agricultural network needs to emphasize genomics and other new biotechnological applications discussed in Chapter 7.

The CGIAR, together with national research centers, were sometimes slow in learning constraints and priorities of local farmers, adapting research to local conditions and culture, and engaging in a three-way communication with field agents and farmers. Furthermore, many crop scientists in developing countries leave local research centers because of low salaries, politics on the job, government roadblocks to research, small budgets, and other grievances (Wade 1975:91–95; World Bank 1982i:57–77).

Network critics charge that research projects emphasize high-yielding grain varieties that benefit the large commercial farmers. To elaborate, scientists tended to develop these varieties as part of a package, which included capital inputs, such as irrigation, fertilizers, tractors, mechanical pumps, threshers, reapers, combines, pesticides, and so on. For example, in India and Pakistan, new wheat varieties were adapted to cropland under controlled irrigation – land owned primarily by relatively affluent Punjabi farmers. Some of the negative effects of the package were increased land concentration, displacement of farm labor, and rising rural unemployment and emigration.

Moreover, the Cornell University scientists David Pimentel and Marcia Pimentel (1993:497–500) contend that the adverse environmental side effects of pesticides, a foundation of the Green Revolution, call into question its long-run sustainability and continuing yield growth. A part of the strategy of the Green Revolution is large monocultures and year-round plantings of a single crop, which increase pest

[2] This is despite estimates that only 1.5 billion hectares (11 percent) of the globe's land surface is used for crop production. FAO estimates that 2.7 billion hectares remain with crop production potential for rainfed agriculture, meaning that only 36 percent of the land suitable is being used for crops. For LDCs, 960.000 million hectares (34 percent) of a potential 2.8 billion hectares already in cultivation have the potential for growing rainfed crops at an acceptable minimum level. Why is such a small percentage of potential land used? The following are examples. Some 90 percent of the unused land is in seven countries: Brazil, Democratic Republic of the Congo (DRC), Sudan, Angola, Argentina, Colombia, and Bolivia. In North Africa, large tracts of land are suitable for cultivating only olive trees, but there is little demand for them in practice. More than 50 percent of the land area in the DRC is suitable for growing cassava but less than 3 percent for growing wheat. Much land suffers from ecological fragility, low fertility, high disease incidence, or lack of infrastructure, requiring high input use and management skills for sustainable use. Other land is used for forest cover, protected cover, human settlements, or economic infrastructure (FAO 2003:127–132). Alas, most nations with an excess supply of land resist emigration from countries with an excess demand for land.

outbreaks and exacerbate the pressure for pesticides. Many LDCs, like DCs before them, have subsidized the use of pesticides, which disproportionately benefit wealthy farmers and large companies. In addition, those pests that survive have a genetic makeup allowing them to detoxify the poison and dominate in succeeding generations, shielding them from pesticides. Furthermore, pesticides upset nature's method of control by wiping out pest predators and swelling other populations that were initially small to pest status. For example, in northeastern Mexico, cotton production required increased insecticide applications but increased the outbreak of tobacco budworms, a secondary pest, which replaced the eradicated boll weevil. In Egypt, DDT use to control the bollworm spurred the white fly to explode into a major pest.

Much of the substantial percentage of pesticides that do not reach their host become environmental contaminants. Pesticides not only damage their targets but also have a toxic effect on wildlife, plants, groundwater, and soil and water organisms. Pesticides can interfere with the endocrine and immune systems of animals, whereas atrazine at low levels harm whole ecosystems, inhibiting algae and plankton growth and the reproduction of fish and other organisms. The goal of the alternative to pesticide application, integrated pest management (IPT), is to reduce yield losses by pests while minimizing the negative effects of pest control. IPT, which uses crop rotation, multicultural planting, field sanitation, and biological control through natural predators, requires substantial investment in research and technology (FAO 2003:304; World Resources Institute, U.N. Environment Program, and U.N. Development Program 1994:111–118).

Prabhu L. Pingali (1998:474–493), sometime CIMMYT, IRRI, and FAO economist, observed that rice productivity growth in tropical Asia had decelerated since the 1980s. Part of this slowing down can be attributed to falling rice terms of trade in world markets. Pingali asked whether the Green Revolution contributed to a decline in rice physical productivity. This revolution included intensification of irrigated land use, involving a permanent move from one rice crop annually followed by dry season fallow to two to three consecutive rice crops yearly on the same land.

Evidence from both IRRI experiments and other on-farm tests in eight South and Southeast Asian countries showed that, holding inputs constant, yields fell from the 1960s to the late 1980s and 1990s. With HYVs, insect and disease infestations rose with intensification. Continuous rice flooding and monoculture, accompanied at time by poorer quality irrigation water and impeded drainage, leads to micronutrient deficiencies and iron toxicity, and sometimes compacted subsoil and salinity buildups. To maintain yields, flooded rice needs rotation with dry-season rice or other crops, such as legumes, barley, or soybeans that do not require standing water. Another way to maintain yields is to increase fertilizer[3] and other inputs. Sustaining productivity

[3] International Food Policy Research Institute (IFPRI) researchers Per Pinstrup-Andersen, Rajul Pandya-Lorch, and Mark W. Rosegrant (1997:30) warn against misapplying environmental concerns about chemicals and fertilizers in rich countries to developing countries. They contend that LDCs, especially sub-Saharan Africa, with low application rates, need expansion in their use of fertilizers.

necessitates a holistic approach to long-term management and more efficient use of land, labor, and other inputs (Pingali 1998:474–493), perhaps enabling the net impact of new HYVs to be positive. But LDCs need to closely scrutinize the health and environmental impact of the Green Revolution's package of seeds, fertilizers, pesticides, water use, and infrastructure costs.

Food distribution. There is more than enough food produced each year to feed everyone on earth adequately, yet millions are hungry. Food distribution is the difficulty. The Japanese, who are well nourished, do not consume many more calories per person daily than the world average (IIASA 2004a; U.N. Development Program 2003:87). The American Association for the Advancement of Science (Gavan and Dixon 1975:49–57) and World Food Program (Thurow and Solomon 2004:A1, A8) estimate that calorie and protein availability in India would have exceeded minimal requirements if distribution had not been so unequal. Furthermore, although Brazil, a country with high income inequalities, has more than twice the GNI per capita of China (inside front cover table), it has about the same proportion of the population undernourished (World Bank 2003h:104–106). In general, undernutrition and malnutrition are strongly correlated with poverty, which in turn is correlated with inequality in income distribution. Except for sub-Saharan Africa, food shortages are not a result of inadequate production but of deficiencies in food distribution.

Remember Sen's discussion of nutrition being dependent on entitlement rather than income level (Chapter 7). The U.N. Development Program (2003:87) contends that

> If all the food produced worldwide were distributed equally, every person would be able to consume 2,760 calories a day (hunger is defined as consuming fewer than 1,960 calories a day). Addressing hunger means ensuring that people have command over the resources (especially income) needed to acquire food. Hunger is more than just a lack of available food. It is a problem of deficiencies in food entitlement and deprivations in related essential services (health care, education, safe drinking water, adequate sanitation). Food entitlement differs from food availability in that it indicates what a person can command with income and thus consume, rather than what is available in the market.

Unequal food distribution means that some countries and localities are likely to face food deficits. Despite increased agricultural productivity in developing countries, their cereals deficits are expected to increase to more than 10 percent of consumption; this percentage is especially high in sub-Saharan Africa and the Middle East (Table 7-2). Domestic food deficits by themselves need not mean undernourishment if a country can afford to import food. However, with higher prices for farm inputs and increased capital goods imports for industrialization, many developing countries may not have the foreign currency to import enough food to relieve the deficit.

Energy limitations. Higher energy prices could seriously weaken our assumptions about the global food balance. The substantial gains made in food productivity in the four decades after World War II were partly dependent on cheap, abundant energy

supplies. World average food output may be ceasing to grow as energy and other resource limitations become more binding. Obviously, the energy-intensive U.S. food system cannot be exported intact to developing countries. Two scientists estimate that to feed the entire world with a food system such as that of the United States would require 80 percent of today's entire world energy expenditures (Steinhart and Steinhart 1975:33–42).[4]

A recapitulation. In the four decades after World War II, the world avoided the Malthusian specter but did not show evidence to support Simon's view that population growth spurred output growth. Indeed, there is reason to be wary about the population–food balance for future years in LDCs. The uncertainty concerning future growth in agricultural productivity, especially in sub-Saharan Africa, probably means that we should continue our efforts at population control.[5]

URBANIZATION AND CONGESTION

LDCs are congested and overpopulated in certain areas and especially so in major cities. Although 33 percent of the population of Africa is urban, it remains the least urbanized of the six continents. Yet, some scholars argue that urban growth in Africa hampers economic development, employment growth, and the alleviation of poverty. In the early 1980s, highways to the central business district in Lagos, Nigeria, were so choked with traffic that it took four to five hours for a taxi to drive 24 kilometers (15 miles) from the international airport in rush-hour traffic. Although the premium on space in the inner city made it almost impossible for the working poor to afford housing there, the cost of transport made it difficult to live even on the outskirts of Lagos. Ironically, the demand for transport (and congestion) in Lagos fell in the late 1980s and early 1990s as a result of an economic depression triggered by reduced real oil export prices!

Remember the description of large Indian cities, with the mixture of fast moving vehicles and bicycles, rickshaws, oxcarts, cattle, dogs, and pedestrians carrying head loads. The capital cities of India (New Delhi), Bangladesh (Dakha), and China (Beijing), with fewer than 10 passenger cars per 1,000 people are at least as congested as Toronto, Vancouver, New York City, Seattle, Stockholm, Tokyo, and Melbourne, all located in countries with more than 450 passenger cars per 1,000 people (World Bank 2003h:167).

Urban areas in LDCs are not only experiencing a rapid natural increase in population but also are serving as a magnet for underemployed and poorly paid workers

[4] Lower tillage agriculture in the United States in the 1980s, 1990s, and early 21st century might reduce this figure a few percentage points.

[5] Hatton and Williamson (2003:465–486) see "rapid growth in the cohort of young potential migrants, population pressure on the resource base and poor economic performance [as] the main forces driving African migration" to Europe and North America, an emigration even more prominent than that from Europe to North America in the 19th century. Yet, unlike the earlier migration, Hatton and Williamson are not optimistic that Africa's economic growth will turn around and slow down the demographic pressures on emigration out of Africa.

from the rural areas. Combating increased congestion may actually increase gross product; usually the costs of congestion are *not* subtracted from national income. A study by the U.N. Population Division (2002) projects the LDC urban population doubling from 2000 to 2038. Virtually all world population growth during this period will be concentrated in cities. After 2007, the urban population of the world is expected to be more than its rural population, a deceleration from increases previously (see Chapter 9). Potential overurbanization puts pressure on LDCs to limit population growth not just in cities but in an entire nation.

RAPID LABOR FORCE GROWTH AND INCREASING UNEMPLOYMENT

The LDC labor force growth rate is the same as the rate of population growth, 1.6 percent yearly. The vast pool cannot be readily absorbed by industry, resulting in increased unemployment and underemployment. Chapter 9 indicates some of the political and social problems, as well as economic waste, ensuing from such underemployment. These problems underscore the urgent need to reduce population growth.

THE DEPENDENCY RATIO

Although the LDC labor force is growing rapidly, the number of children dependent on each worker is high. High fertility rates create this high **dependency ratio** or load, which in turn slows the growth of gross product per capita (Bloom and Canning 2004). The **dependency ratio** is the ratio of the nonworking population (under 15 years old and over 64 years old) to the working-age population (ages 15 to 64).

You can view age structure in a **population age pyramid** showing the percentage distribution of a population by age and sex (Figure 8-10). Austria, with a near stationary population, has a low fertility rate and only 16 percent of its population under 15 years old (represented by the bottom three bars in its pyramid). The bottom of Austria's pyramid is narrow, and its ratio of non-working to working age population is only 47 percent. The United States, with a slow growth of population, has 21 percent of its population under 15 years, and a dependency ratio of 52 percent.

LDCs have higher dependency ratios so that their lower three bars are wider. Bolivia, with 40 percent under 15 years, has a ratio of 67 percent, whereas Nigeria, with 44 percent under 15, has a ratio of 87 percent. In 2001, more than 20 percent of adults in Botswana were HIV-positive in 2001. Thus, the numbers of births, child deaths, women of child-bearing age, and their partners have been adversely affected by HIV/AIDS. Indeed, without AIDS, Botswana's dependency ratio, 79 percent, and population pyramid would approximate those of Bolivia (Lampley, Wigley, Carr, and Collymore 2002:17–19).

Figure 8-11 shows that as fertility rates have fallen, the dependency burden, based on the ratio of the non-working age to working-age population, has declined in East and South Asia, the Middle East, and Eastern Europe and Central Asia since the 1970s and in sub-Saharan Africa, behind in the demographic transition, since the 1990s.

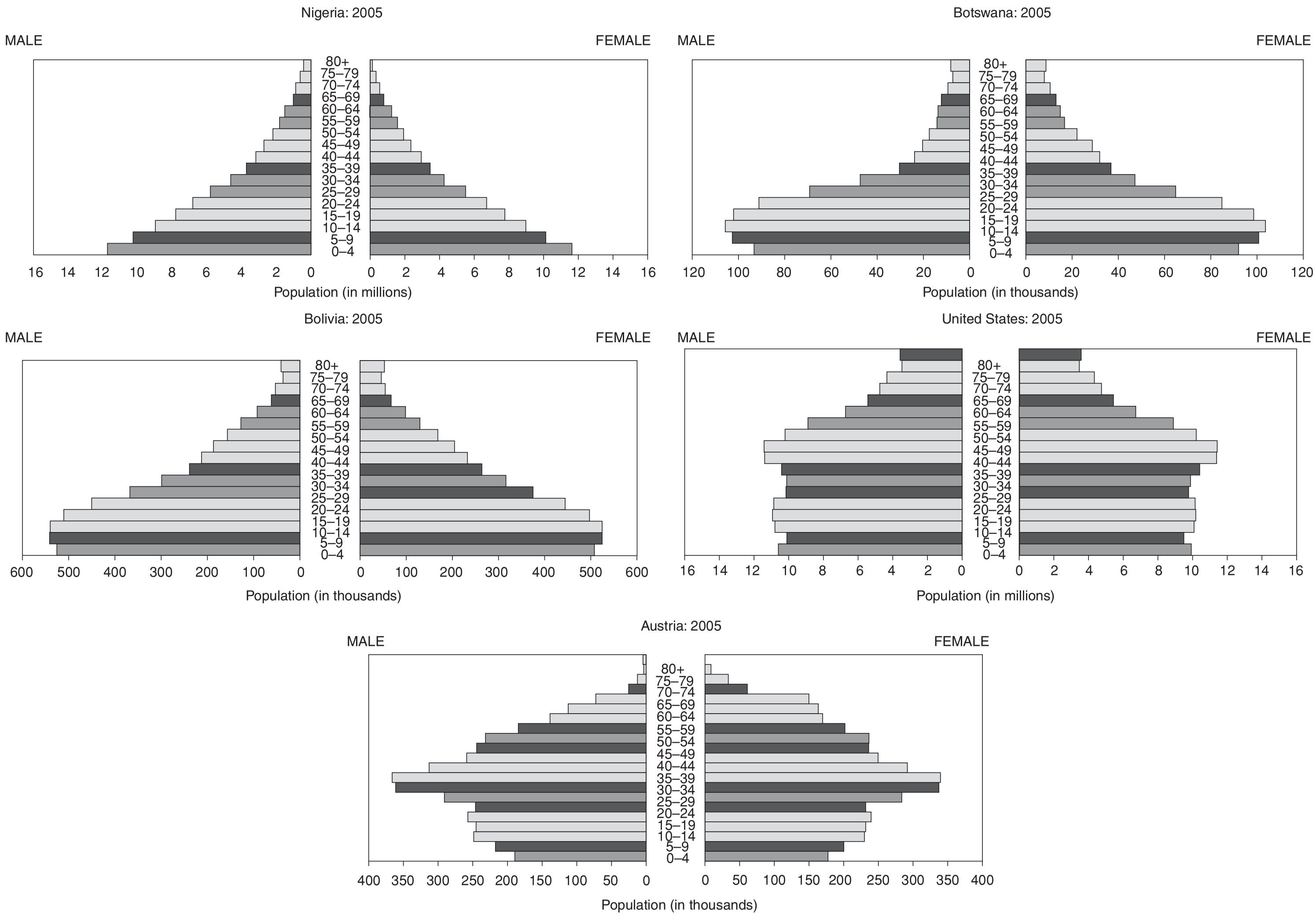


FIGURE 8-10. Population Distribution by Age and Sex, 2005: Austria, the United States, Bolivia, Botswana, and Nigeria. *Source:* U.S. Bureau of the Census 2004a.

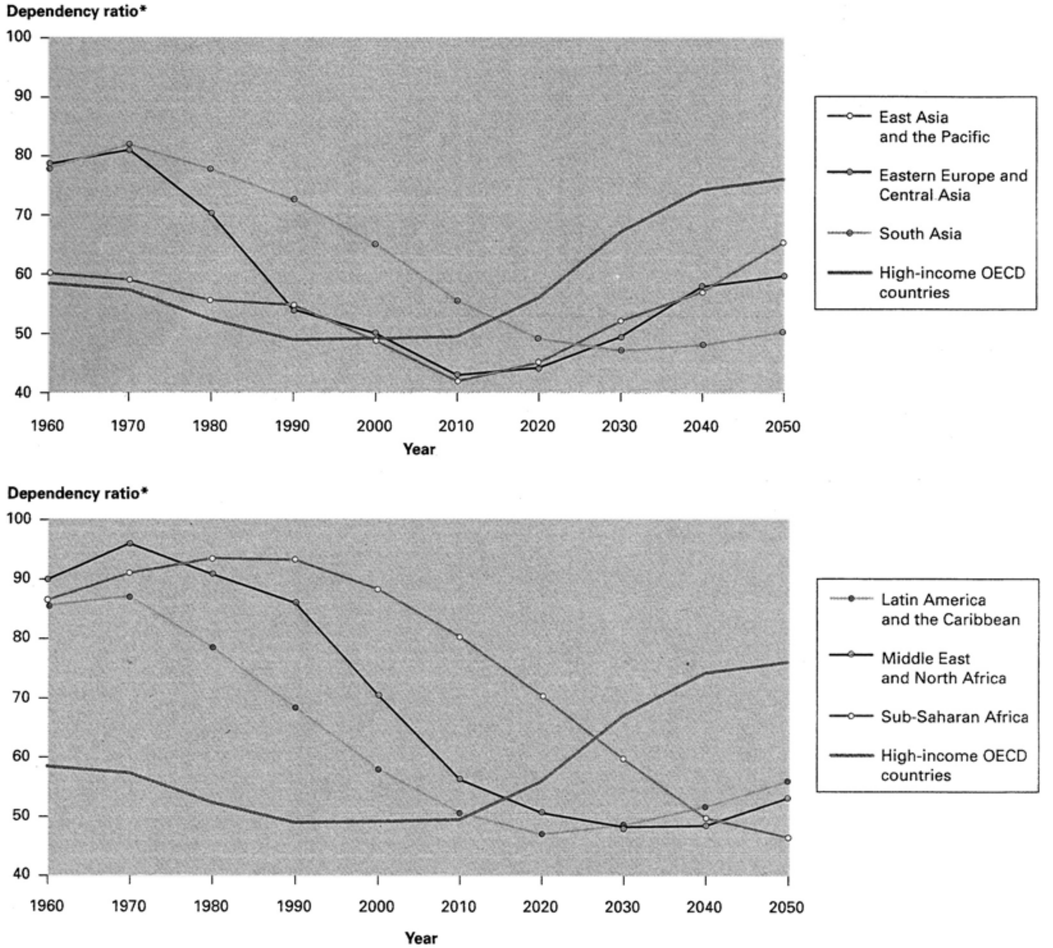


FIGURE 8-11. Dependency Ratios Are Declining in Developing Countries for a While.
Source: World Bank 2003i:6.

Some LDCs narrowed the base of the pyramid in the last 40 years. For example, in 1960, when the birth rate in Costa Rica was 47 per 1,000, it had a population structure with a wider base and a narrower peak than Nigeria's pyramid to the left of Figure 8-10. However, after the country launched a vigorous family-planning program in 1968, the birth rate dropped to 29 per 1,000 from 1978 to 1987 (26 in 1994 and 18 in 2003) so that the bottom bars narrowed substantially.

Of course, the ratio of the labor force to population is not only a function of dependency ratios. Because of cross-national differences in the participation of women, old people, youths, and children in the labor force, countries with similar dependency ratios may have different ratios of labor force to population.[6]

[6] Beaudry and Collard (2003:441) find that since 1975 DCs "with lower rates of adult population growth adopted new capital intensive technologies more quickly than their high population growth counterparts, therefore allowing them to reduce their work time without deterioration of growth in output-per-adult."

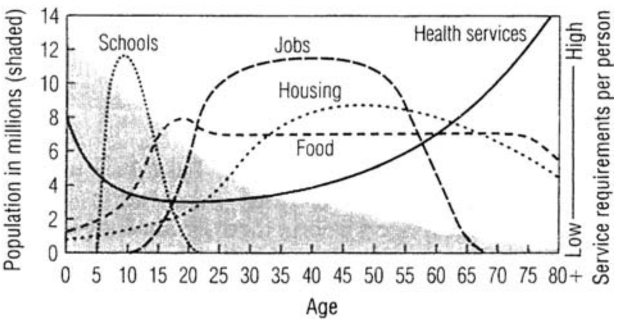


FIGURE 8-12. Population Age Profile and Service Requirements: Bangladesh, 1975. Bangladesh's high birth rate necessitates high spending levels on food, health care, and education for children. (Total population, 74 million). *Source:* McHale and McHale 1979:14.

Dependency ratios vary within developing countries according to income. The living standards of the poor are hurt by high fertility and large families. Each adult's earnings support more dependents than is the case in richer families. Thus, in peninsular Malaysia in 1980, 71 percent of the richest 10 percent (by household) were 15 to 64 years old compared to only 45 percent for the poorest 10 percent (World Bank 1980i:42).

The widespread decline in dependency ratios enables societies to divert fewer resources for schools, food, health care, and social services for nonworking young people. Figure 8-12, which plots the relationship between age and service requirements, shows the higher school and health care costs of caring for those 15 years or under. Households in Bangladesh have a larger number of consumers per earning member than in Europe, which means a high ratio of consumption to income. Less income is left over for savings and capital formation.

The Oxford economist Robert Cassen (1994:12) argues that

> [South] Korea provides a contrasting example. If Korea had maintained its 1960 fertility level until 1980, the number of primary school children would have been one-third larger, and expenditure on primary education (at the same cost per pupil) would have been higher by 1 percent of GDP. In fact, however, Korea effectively promoted fertility decline through publicly funded family planning programs at the same time that socioeconomic change made smaller families attractive. It was thus able to improve both the extent and the quality of education, helping to lay the foundations for its manufacturing success.

In 2003, 5 percent (256 million) of the LDCs' population was 65 years and over, compared to 15 percent (180 million) of the DCs' population (Population Reference Bureau 2003:3). In 2025, demographers expect those 65 and over in LDCs to be 13 percent (884 million), and those in DCs to be 32 percent (320 million) (U.S. Department of Commerce 1999).

As Figure 8-11 shows, high-income OECD countries have already experienced an increase and by 2010 will experience a substantial increase for several decades

in dependency ratios, largely as a result of increased ratios in those over 64 years. One example is Japan, experiencing a low fertility rate combined with a high life expectancy. The percentage of Japan's population over 64, which in 2005 was 19.9 percent, is expected to reach 22.5 percent in 2010, 27.8 percent in 2020, and 29.6 percent in 2030 (National Institute of Population and Social Security Resarch 2002:13).[7] LDCs' dependency rates, high now, will fall with reduced fertility but will rise again because of an increased percentage of persons aged 64 and over. East Asian and Middle Eastern LDCs' rising dependency ratios from increased aging will occur in the second decade of the 21st century; Latin America's in the 2020s, South Asia's in the 2030s, and Africa's, with the highest fertility rate, even later.

In light of the world's aging population, Philip Morgan asks (2003:589–603): "Is low fertility a twenty-first century demographic crisis?" It is a problem, but the "kind of problem one would like to have," and certainly not a crisis, at least not yet (ibid., pp. 599–600).

Overall, neither Malthusian pessimism or Simon's optimism is warranted. Simon's model fails to consider how population growth increases the costs of agricultural resources, congestion, environmental degradation, labor force underemployment, and the burden of dependency. By contrast, the two centuries since Malthus wrote have demonstrated that technological innovation, capital accumulation, and birth control more than compensate for diminishing returns to fixed land.[8]

Recent econometric studies do show that high fertility and rapid population growth hinder economic development in developing economies (Birdsall, Kelley, and Sinding 2003). Robert Barro's (1997:13–25) cross-country empirical study of nearly 100 countries from 1960 to 1990, including one regression for the late 1980s, shows that the increased resources devoted to child rearing instead of production contribute to the negative relationship between population growth rate and income per capita.[9] Population growth is likely to hamper growth in the first few decades of the 21st century in Africa and parts of South Asia unless economic, population, and environmental policies change.

[7] Knodel and Ofstedal (2003:677–698), who plot the gender gap in life expectancy by continent, ask the same question that visitors to homes for the aged ask today: "Where are the men?"

[8] However, in the relatively unsettled areas of Asiatic Russia, inland Brazil, Australia, and Canada, population growth may be subject, other things being equal, to increasing returns and growing per capita income, resulting from increased division of labor. Indeed, Birdsall, Kelley, and Sinding (2003: 69) find a positive relationship between population growth and per capita output growth among DCs.

[9] Regressions of the effect of population growth on the growth of GNP per capita, from 1965 to 1987, in Razin and Sadka (1995:8) provide support for this inverse relationship. However, regressions of the effect of population growth on economic growth, 1965 to 1984, in Bloom and Freeman (1986:403–405), provide no support for either population growth's positive or negative effect. The findings of Barlow (1994:153–165) are more mixed, indicating that whereas past fertility rates are positively related to economic growth, present population growth is negatively related to economic growth. Goodfriend and McDermott (1995:116–133) find that population growth may increase or decrease GNP per capita, depending on the relative size of the preindustrial and market sectors. Income per capita is an average of output from a diminishing-return preindustrial technology and an increasing-returns market technology. By contrast, the enhanced neoclassical growth model of Mankiw, Romer, and Weil (1992:407–437) shows that higher population growth lowers income per capita because the available capital must be spread more thinly over the population of workers.

Strategies for Reducing Fertility

Increasing urban congestion, rapid labor force growth, a high dependency burden, and uncertainty about food output growth indicate the importance of limiting LDC population growth in LDCs. The only possible approach here is a reduction in fertility. Let us examine two strategies: (1) birth control programs and (2) socioeconomic development.

BIRTH CONTROL PROGRAMS

From time immemorial, societies have had available a number of contraceptive methods. Intercourse without penetration and coitus interruptus have been known and practiced in one form or another in nearly all societies. Abortion; high celibacy rates; no marriage at all; late marriage; sanctions against the remarriage of widows; and taboos against coitus outside marriage, while nursing an infant, or on certain religious holidays have all been used to reduce fertility. Ireland, with land and food shortages throughout much of the 18th, 19th, and early 20th centuries, had less and later marriage than other parts of Europe. In the early 20th century, the average Irish bridegroom was over 30. Marriage had to be postponed until the son could obtain land and independence from his father.

Moreover, a large number of premodern cultures have practiced infanticide (a control on family size, although not on births). In some preindustrial cultures, a newborn child is not considered a member of society, so that destruction of the child is viewed psychologically in much the same light as some Westerners view abortion.

Furthermore, chemical and mechanical contraceptives were known and applied in many primitive and peasant societies. Women in 19th-century Martinique and Guiana rather effectively used a douche containing lemon juice mixed with a decoction of the husks of the mahogany nut. However, some of these contraceptives – the vaginal insertion of an okralike seed pod, rags of finely chopped grass, or dung – were clumsy, sexually unsatisfactory, or unhealthy. By and large, the technology of preindustrial societies was not equal to providing a chemical or mechanical contraceptive that was cheap, satisfactory, effective, and readily available (Davis and Blake 1956:211–235).

But as most of these societies had high mortality rates, population growth rates were low anyway. However, maintaining a stable population today requires lowered fertility rates and more adequate contraceptives. Because of the cost of modern contraceptives and their social benefits, many LDC governments subsidize birth control devices, so that users receive them free or for a nominal cost.

Modern contraceptives. In past years, the abortion-inducing drug, the injectable drug, the oral contraceptive (the Pill), the morning-after pill, the intrauterine device (IUD), arm implants, transdermal gels and patches, abortion, and sterilization were all used as methods of birth control. Condoms, diaphragms, spermicides, coitus interruptus, and the rhythm method are cheap but less effective than the first grouping.

Male sterilization via vasectomy, which involves a 10-minute out-patient operation with local anesthesia, is relatively inexpensive. It is usually irreversible, safe, and has no effect on subsequent sexual performance. Vasectomies have been widely used in India. Female sterilization, a more expensive and more serious operation, is rarely performed in LDCs (although post-1980 India is an exception).

The IUD is an effective contraceptive and, except for male sterilization, the cheapest (although it has to be inserted by medical personnel). However, because of high rates of expulsion or removal, use of the IUD requires follow-up. A study in the early 1970s in Lucknow, India, indicates that less than one-half of the women using IUDs retained them for as long as a year and only about one-fourth for as long as two years (Uppal 1977:48); IUD retention is not much longer today.

The oral contraceptive, nearly 100 percent effective if taken on schedule, is more expensive than the IUD. The Pill must be taken daily except for an interval of several days per month, a difficult system for people in both DCs and LDCs.

Abortion is expensive and, where illegal, is performed under conditions hazardous to the woman's life and health. However, it is a widely used method of birth control, as indicated by estimates of three abortions for every ten live births in the world today. In 2001, in Hungary, a nominally Roman Catholic country, there were 6 abortions for every 10 live births; in Russia there were 15 abortions for every 10 births (Johnston 2004). Today, about 60 percent of the world's population live in countries where abortions are legal.

Family-planning programs. The Population Reference Bureau (2003) estimates that 59 percent of the world's married women of child-bearing age use (mostly modern) contraceptives. Robert Cassen (1994:6) estimates that 100 million or 15 percent of the world's couples, in which women are of reproductive age, wish to limit their fertility and need to be provided improved access to contraceptives. LDCs comprising 95 percent of their population have official family-planning programs to reduce population growth. India established a program in 1951, Pakistan in 1960, South Korea in 1961, China and North Vietnam in 1962, and a wave of others occurred thereafter (World Bank 1984i:127). In 1979, there may have been as many as 40 million new users of birth control devices and methods provided by family-planning programs worldwide, including sterilizations, IUDs, the Pill, abortion, condoms, or others.

The six Asian countries – China, Taiwan, South Korea, Thailand, Indonesia, Sri Lanka, and Vietnam – whose total fertility rates (1.9–2.5) are almost as low as those in richer countries (see Figure 8-8) all launched family-planning programs in the 1960s that substantially reduced fertility rates during the subsequent decade. In 1962, China advocated "birth planning" to protect the health of mothers and children. During the Cultural Revolution from 1966 to 1976, many neighborhood groups collectively set targets for births and awarded the privilege of having babies to "deserving couples." Even in rural areas, where contraceptives dispensed by health care centers included "paper pills," sheets of water-soluble paper impregnated with oral contraceptives, over one-half of the couples practiced contraception. The "one couple, one child" policy, adopted in 1979, includes an array of rewards and sanctions, from community

pressure and intimidation (sometimes from designated grandmotherly figures) to deprivation of educational benefits and job opportunities. The policy was enforced more or less in urban areas, but rarely in rural areas. China's birth control programs reduced the crude birth rate from 36 per 1,000 in 1960 to 19 in 1986 (a greater success than India's).

In 1963, Vietnam was the first Southeast Asian country to implement family planning, launching a "One or Two Child Policy" after unification in 1975. In 1973, contraceptive users as a percentage of women of reproductive age exceeded 50 percent in Taiwan and reached 30 percent in South Korea. This progress in family planning contributed to a decrease in crude birth rate from the lower 40s to the teens per 1,000 in both countries between 1960 and 1988. Sri Lanka's relatively strong family-planning program resulted in a decline in the birth rate from 36 to 24 per 1,000 between 1960 and 1988, whereas Indonesia's program was instrumental in a reduction from 47 to 28 and Thailand's in a fall from 46 to 29 during the same period (Ehrlich, Ehrlich, and Holdren 1977; World Bank 1979i:56–58; Population Reference Bureau 1988; Gulhati and Bates 1994:71–72; Simons 2001).

Some of the momentum in support of LDC family planning was lost after 1990. U.N. Secretary-General Boutros Boutros-Ghali, under pressure from LDCs' increasingly ambivalent about family planning, issued a draft *Agenda for Development* in 1994 that indicated that population growth was a potential problem but remained silent on population policies (Population and Development Review 1994a:683–686). From 2002 to 2004, U.S. President George W. Bush canceled funding for the U.N. Population Fund and imposed a "global gag rule," baring international family-planning organizations that receive U.S. aid from using their own funds to discuss abortion with patients, provide abortions, or lobby to change abortion laws in their country.

Negative externalities in childbearing. Chapter 5 mentioned external economies or externalities, cost advantages that an individual or firm conveys to other units within the economy. **Negative externalities** or external diseconomies are costs that an actor (for example, a couple) imposes on the rest of society. By having more children, a couple may increase its voice in local decisions, its claim to village common resources, and its economic security (especially during old age). At the same time, for society, more children diverts spending on physical and human capital, increases environmental degradation, and reduces wages (by increasing labor relative to other resources) (Birdsall 1994:256–261).

Negative externalities associated with childbearing mean that for a couple, the cost of preventing an extra (marginal) birth exceeds the benefit, whereas for society the benefit of preventing a marginal birth exceeds the cost. In this situation, society would gain by the state subsidizing contraceptives for family-planning programs so that the relationship between marginal cost and marginal benefit for a couple corresponds to the marginal cost–benefit relationship for society.

Cost-effectiveness of family-planning programs. How cost-effective are family-planning programs? Does the social marginal benefit of a program exceed its social

marginal cost? Suppose the present value of benefits from preventing a birth is $100, a figure equal to the saved hospital, medical, food, educational, and other costs minus the expected earnings of the person whose birth was prevented.[10] Assume the cost of providing contraceptives to prevent one birth amounts to $50. If a subsidy of $40 induces a family not to have another child, program costs would still be only $90 per prevented birth, $10 less than the $100 the birth would cost a society.

Simulation models developed by Stephen Enke (1960:239–248; 1966:44–56) indicate high returns to investment in birth control programs. As a result of slowed population growth, labor force growth also slows – decreasing the ratio of labor to capital and natural resources and increasing labor's marginal productivity. In addition slowing population growth reduces the ratio of nonworking dependents to the economically productive population (a ratio discussed earlier in this chapter). Nevertheless, Enke's models overstate the returns to family-planning programs. Frequently, they attribute to these programs prevented births that would not have occurred anyway because traditional methods of birth control would have succeeded. The models also understate the increased cost per user as the programs reach out to families resistant to birth control and overstate the net benefits of a prevented birth to society. Underestimating overhead costs in the population centers and understating the present value of future earnings are also problems (Zuvekas 1979: 92–93).

Motivation to limit family size. A successful family-planning program requires more than making a supply of contraceptives available; it also requires a demand for birth control. A number of programs in developing countries, especially in highly populated South Asia, have had only a limited impact on reducing fertility, partly because of a lack of motivation to limit family size. India's program encountered active resistance during the early 1960s. Opposition, which led occasionally to riots, had numerous causes. The programs were directed by Western instead of local medical services. Frequently, religious and ethnic minorities viewed the program as discriminatory, and peasants believed that it was contrary to their economic interests. However, India's program was reorganized in 1965 with strong governmental support. Incentive payments were increased. For example, transistor radios were given to the users as well as persons who "motivated" the use of the birth control devices. A "cafeteria" approach to contraceptive methods and devices was used. Funding increased, so that by 1975 there were 50,000 family-planning centers and subcenters throughout the country. Nevertheless, despite the effort, the birth rate fell from 44 to only 33 per 1,000 between 1960 and 1988, a drop not much in excess of countries investing little in family-planning programs. Furthermore, the public outcry following a sterilization

[10] To obtain present value, evaluate the present worth of each part of the stream of future receipts and expenditures. Thus, if the interest rate is 15 percent, the present value of earnings of $5,000 18 years into the future is $5000/(1+.15)^{18}$, or $404.03. The present value of $1,000 spent on food, housing, health care, schooling, and other items 8 years into the future is $1000/(1+.15)^{8}$, or $326.90. Once the present worth of future receipts and expenditures for every year is known, simply add together all these separate, discounted values. See Chapter 11.

campaign in 1976 and 1977 set back the entire family-planning program by more than a decade.

The varying success of organized family-planning efforts in developing countries indicates that making contraceptives available is not enough to reduce fertility rates. Couples will not use contraceptives unless they are motivated to limit births. The next section discusses ways in which socioeconomic change affects birth control decisions.

SOCIOECONOMIC DEVELOPMENT

Children in a peasant society. In most low-income countries, especially in South and Southeast Asia, farming is predominantly peasant agriculture. Peasants cultivate bits of land they usually do not own. Agricultural methods are traditional, technology stagnant, and little capital is available. Compared to their counterparts in urban society, children in a peasant society are more likely to be perceived as an economic asset. Boys as young as 8 to 10 years tend or herd animals, weed, pick, and sell produce. Girls fetch water, prepare meals, tend to younger children, and sometimes farm. Children place fewer economic demands on a peasant family. Food is raised domestically; housing is constructed by the family from local materials; and the cost of education, entertainment, and travel is negligible. Although the family may receive a dowry when a daughter marries out of the village, major financial security is usually provided by sons, who add to the family's farm output or earn money from trade or another occupation. Having a larger family permits more income and asset transfer to balance temporary deficits or surpluses. When social insurance is inadequate, the larger the family, the smaller the risk of a poverty-ridden old age.

The literate, urban white-collar worker in South and Southeast Asia is more likely to limit family size than is an illiterate peasant in the same region. Consider, for example, the family in a two-room apartment in Delhi, India, with husband and wife employed and their children expected to get an education. The cost of children is more for this family than for one in a less densely populated village in rural southeastern India. Childrearing, particularly when children are too young to attend school, interferes with work for women outside the home. In addition, children are more likely to interfere with the urban worker's aspirations for a better job or geographic mobility.

Indian village values support high fertility. In much of rural India, the status of the new bride in her husband's village is tied to having children, especially sons. A son not only provides added security for old age but also performs essential religious rites on the death of a parent.

As child mortality rates fall, fewer births are needed to achieve any given desired family size. Parents may need only two to three children to be virtually certain of a surviving son, in contrast to the six to eight essential when death rates are high.

In general, modernization affects the birth rate. For example, as Table 8-3 indicates, fertility in India declines with increased education (especially of women), income, urban living, and improved occupational status. This argument supports Nobel laureate Gary Becker's (1991:141) view that the change in the demand for children rather than the supply of contraceptives is the primary cause of the change in fertility.

TABLE 8-3. Average Number of Children Born per Couple, by Selected Characteristics, in India, 1961–65 (by income, education, residence, and occupation)

Characteristics	Average number of children
Household income and expenditure (1960–61)	
Up to Rs 10 per month	3.40
Rs 11–20 per month	3.02
Rs 21–30 per month	2.95
Rs 30 and over per month	2.70
Educational level attained by women (1961)	
Illiterate	3.5
Primary school	3.4
Secondary school	3.1
College	3.0
Postgraduate	2.5
Residence (1963–64)	
Urban	3.19
Rural	3.76
Occupation of head of household	
Agriculture	4.4
Industry	4.2
Professional – law, medicine, teaching	3.7
Average for all occupations	4.3

Source: Uppal 1977:41.

Income distribution. A number of studies indicate that fertility is lower when income distribution is more even. Income redistribution to lower classes increases the percentage of the population above the poverty level. Increased economic security and higher income for the poor mean having children is not the only way of securing one's old age. Higher absolute incomes and redistribution policies (discussed in Chapters 6 and 7) increase lower-class literacy, mobility, and urbanization, factors reducing birth rates. Thus, in Taiwan, high enrollment rates in schools, which reduce child labor, were associated with lowered fertility (Simon 1976:36–76). Furthermore, with allowances for time lags, low birth rates increase income equality by decreasing unemployment and increasing per capita expenditure on training and education.

Taiwan and the Philippines illustrate this relationship between income distribution and fertility. In the early 1970s, per capita income in Taiwan was approximately the same as in the Philippines. However, there was a considerable discrepancy between the income distribution in the two countries. The top 10 percent of the population in the Philippines was significantly richer than the same group in Taiwan, but the bottom 20 percent was more than twice as well off in Taiwan. Moreover, in comparison to the Philippines, which had a high farm tenancy rate, in Taiwan, as a result of

land reform in the 1950s, nearly all farmers owned their land. These facts explains why Taiwan's fertility rate has continued to be substantially lower than the Philippines' (Rich 1972/73:10–15; Johnson 1994:503–531). More people had reached a socioeconomic level in Taiwan that promoted birth control. And income inequality is lower in low-fertility South Korea (which also had a low farm tenancy rate), Taiwan, China, Thailand, Indonesia, Sri Lanka, and Cuba than in high-fertility Venezuela, Mexico, Colombia, Panama, Peru, Ecuador, El Salvador, and Honduras (Figure 8-2).

Religion. When factors measuring modernization are held constant, religion explains few cross-national fertility differences. Thus, fertility rates in predominantly Roman Catholic Latin America, France, Portugal, and Poland given their level of development, are about what demographers would expect. And Catholic Spain and Italy had the lowest total fertility rates in the world, 1.2, in 2003.[11] Yet religious (prolife) politics (along with a belief that population was neutral in development) influenced the U.S. government, previously the major donor to LDC population programs, to refuse to finance family-planning programs in LDCs, 1984–1992. Washington feared that aid to these programs might promote or condone abortion or coercive population control. This withdrawal of U.S. aid reduced funding for the U.N. Population Fund and other family-planning programs in LDCs. In 1994, President William J. Clinton rescinded this policy. The following year, the United States Agency for International Development (USAID) identified "stabilizing world population growth and protecting human health" as one of the five areas that were keys to sustainable development (Hendry 1988:32; Population Reference Bureau 1995; Population and Development Review 1993:215–216; Population and Development Review 1994b:483–487). In 2002, the U.S. government again withdrew funding for LDC family planning.

A summary of variables. Interestingly enough, a study by Anne D. Williams (1976:117–157) indicates income is not important in reducing fertility rates when other factors are held constant. How then do we explain the negative relationship between per capita income and fertility in Figure 8-8? Variables *positively* associated with income, such as education and literacy, occupational status, women in the labor force, urbanization, and income equality, are all *negatively* correlated with fertility. By contrast, child mortality rates and children in the labor force – *negatively* related to income – are *positively* associated with the birth rate.

The role of women. A major theme of the International Conference on Population and Development, held in Cairo, Egypt, in 1994, and the World Summit on

[11] Greece and several transitional countries of Eastern and Central Europe and the former Soviet Union had the same TFR.

The Philippines is an exception in which religion influences fertility rates. "Continued ambivalence and resistance at the national level on the merits, the morals, and the means of birth control" by President Gloria Macapagal Arroyo and Philippine political leaders (Tarmann 2004), under pressure from the Roman Catholic church, contributed to the closing down of some family planning clinics and women's health care clinics, increasing illegal abortions and affecting the Philippines' TFR, 3.5, compared to 1.9 for East and Southeast Asia generally (Population Reference Bureau 2004).

Sustainable Development, in Johannesburg, South Africa, in 2002 was that countries wishing to reduce birth rates should empower women socially and economically. Female equality is associated with high levels of female education and labor-force participation, both variables related to low fertility.

DEVELOPMENT OR FAMILY PLANNING?

What policies then can a developing country pursue to lower fertility rates? Programs promoting social and economic development by improving health, nutrition, education, female rights, and urban development will lower fertility rates. In addition, improving income distribution – including more educational and job opportunities for women, the underprivileged classes, and lower-income groups – will also contribute to a reduced birth rate. In a sense, lower fertility is a by-product of strategies widely considered socially desirable in themselves.

Which is more important in contributing to reduced fertility, family planning or socioeconomic development? We cannot choose one as more important, as birth reduction depends on both. Birth control devices offered by family-planning agencies will not be accepted if the social and economic circumstances of the population are such that reduced fertility does not seem an advantage. By contrast, people wanting smaller families must have access to birth control devices and information. You can either argue that China's TFR fell from 5.6 in the early 1970s to 1.7 in 2003 because of vigorous family planning or rapid socioeconomic development. Or you can either contend that Nigeria's TFR only declined from 6.3 in 1977–81 to 5.8 in 2003 because of "a failure of Nigeria's population policy" (Obono 2003:109) or negative real per capita growth in the last quarter of the 20th century (Chapter 6).

Developing countries serious about reducing fertility need both family-planning programs and policies promoting socioeconomic development and increased income equality.

Development and population are interacting variables. Each affects the other.

Conclusion

1. Population growth in the second half of the 20th century, especially among LDCs, is unprecedented in human experience. Yet, since 1960, population growth has decelerated. The developing world has a current population growth rate of 1.6 percent yearly. More than one-half of the world's population lives in Asia.
2. The demographic transition is a period of rapid population growth occurring between a preindustrial, stable population characterized by high fertility and mortality rates and nearly equal birth and death rates in a late modern period. The fast growth takes place in the early transitional stage, when fertility rates remain high but mortality rates decline.
3. Contemporary LDC population growth has been faster than that of the DCs during their early transitional period because of a sharper drop in mortality rates in LDCs. Today's developing countries were able to take advantage of advances in food production, new pesticides, improvements in transport and communication,

improved nutrition, better personal hygiene, medical innovations, and immunization in a short time – many of which were not available to DCs during their early demographic transition.

4. Fertility decreases with economic development, urbanization, industrialization, mobility, literacy, female labor force participation, reduced income inequality, and greater family-planning efforts. However, these efforts are not likely to be successful unless socioeconomic development and improved income distribution make birth control seem advantageous. Development and family-planning programs have both contributed to the decrease in LDC fertility rates since the 1960s.
5. The young age structure in LDCs means that their populations will continue to grow even after the average woman of childbearing age bears only enough daughters to replace herself.
6. Malthus's predictions that population would outgrow food supply were wrong in the past because he did not foresee that technological change, capital accumulation, and voluntary birth control would maintain a safe food and population balance. Present agricultural production is sufficient to feed everyone on earth adequately. However, deficiencies in food distribution among and within nations, inadequate agricultural research, and limited energy make future food availability in LDCs rather uncertain, especially in sub-Saharan Africa.
7. Simon, who contends that population growth stimulates technology, division of labor, and economic growth, argues against a LDC government population policy. However, Simon's assumptions contradict the second law of thermodynamics, which states that the world is a closed system with ever-increasing entropy.
8. Increased urbanization and congestion, rapid labor force growth, growing unemployment, and high dependency burdens are some major costs of high fertility rates and rapid population growth. That 30–35 percent of LDC population is 0–14 years old compared to only 15–20 percent in the DCs means that resources have to be diverted from capital formation to take care of the young in the LDCs.

TERMS TO REVIEW

- Consultative Group on International Agricultural Research (CGIAR)
- crude birth rate
- crude death rate
- demographic transition
- dependency ratio
- family-planning programs
- global public goods
- Green Revolution
- international network of agricultural research centers
- laissez-faire
- Malthusian view
- negative externalities
- population age pyramid
- population momentum
- replacement-level fertility
- stationary population
- total fertility rate (TFR)

QUESTIONS TO DISCUSS

1. What factors have contributed to a rising LDC population growth rate since 1950 compared to previous periods of the same length? Why has the LDC population growth rate decelerated in recent decades?
2. Explain the demographic transition theory. At what stages in the theory are LDCs? Why are they in different stages?
3. Compare and contrast the historical population growth patterns of DCs and today's LDCs. Why are the patterns different?
4. What, if any, is the statistical relationship between birth rate and GNP per capita? Between birth rate and income distribution? What are the reasons for these relationships?
5. Why would population continue to grow for several decades after it reaches a replacement-level fertility?
6. What are some of the costs of a high fertility rate and rapid population growth?
7. How well does Malthusian population theory explain Western population growth? Contemporary LDC population growth?
8. What do you expect to happen to food production per capita (especially in LDCs) in the early decades of the 21st century?
9. Discuss and evaluate views of economic optimists such as Simon who argue that LDC governments do not need a policy to limit population growth.
10. Which policies are more important for reducing fertility: family-planning programs or socioeconomic development?

GUIDE TO READINGS

Population sources include the annual *World Population Data Sheet* from the Population Reference Source, the U.S. Census Bureau's World Population Information (see later), the most recent World Bank's *World Development Indicators* (CD-ROM or volume), and http://www.unfpa.org/ for the U.N. Population Fund. Birdsall, Kelley, and Sinding (2003) summarize the empirical evidence on the relationship between population and economic growth.

The *Population Bulletin* frequently provides timely surveys of the LDC population and labor force. The *Population and Development Review* is probably the best journal to browse for the latest analyses of the relationships between population and economic development. Several chapters in Eicher and Staatz (1998), including those by Antholt, Bonnen, Hayami, Morris and Byerlee, Pingali, Schiff and Valdes, and Timmer, analyze issues pertaining to increasing LDC food productivity.

Merrick (1986:7–15) and Teitelbaum (1975:420–425) discuss the demographic transition. Teitelbaum expounds and criticizes the theory of demographic transition. Kelley (1988:1685–1728) summarizes the literature on the economic effects of population growth. Dasgupta (1995b:1879–1902) surveys the literature on the population problem.

Chamie (1994:131–146) points out the weaknesses of population databases that contribute to faulty analyses and strengths. Pritchett (1994:1–55) presents evidence that actual fertility in LDCs closely coincides with desired fertility. Bongaarts (1993) introduces "The Supply-Demand Framework for the Determinants of Fertility," including an analysis of the economic historian Richard Easterlin's theory of household choice in fertility. Nancy Birdsall (1988) examines "Economic Approaches to Population Growth."

Bloom and Freeman (1986:401–408) summarize the effect of rapid population growth on LDC labor force growth. Johnson (1994:503–531) is an excellent demographic study of China's population.

9 Employment, Migration, and Urbanization

Questions concerning population and the labor force are intertwined. The dependency burden of the working population depends on fertility rates, and labor force growth is a function of natural population increase and migration. Labor skills are a major component of population quality. This chapter examines employment, unemployment, underemployment, and labor migration, whereas the next chapter considers the quality of labor resources.

Before the main body of the chapter, however, we want to introduce Chapters 9–13. For now, the discussion shifts from poverty alleviation, income distribution, and the population problem (Chapters 6–8) to the factors that contribute to economic growth (Chapters 9–13).

The Production Function

As Chapter 5 indicated, we can visualize growth factors in a **production function** stating the relationship between capacity output and the volume of various inputs.

$$Y = F(L, K, N, E, T) \tag{9-1}$$

means that output (or national product) (Y) during a given time period depends on the input flows of labor (L), capital (K), natural resources (N), and entrepreneurship (E); and prevailing technology (T).

The formula implies that each input, such as labor (L), is homogeneous. We could assume that L represents a number of labor units in which a skilled person is more than one unit. More realistically, though, L stands for a list of skills, together with the number of individuals possessing each skill, available during the unit of time.

Capital goods – plant, equipment, machinery, buildings, and inventories – are produced goods used as inputs in further production. To avoid circularity, where the value of capital is determined by its output potential, the *stock* of capital consists of a heterogeneous complex of specific capital goods. Variable K, however, refers to the *flow* of capital services available for production during the period.

Analogous to the other inputs in our equation, N is a heterogeneous complex of natural resources. Although the **stock** of natural resources, at least nonrenewable resources, may be gradually depleting, only the **flow** per unit of time is relevant for the production function.

If technology is fixed, the flow of natural resources places an absolute limitation on physical production in such industries as steel and aluminium. New discoveries or techniques may allow increased exploitation of natural resources, so that the flow of *N* increases per time period; by contrast, advances in technology, such as transistors and silicon chips, may reduce the natural resources required per unit of output.

Entrepreneurship is the production resource coordinating labor, capital, natural resources, and technology. Variable *E* lends itself even less to quantification than the other production factors.

Technology (*T*), or technical knowledge, connotes the practical arts, ranging from hunting, fishing, and agriculture through manufacturing, communication, medicine, and electronics. *T* can be a direct production input, as in Equation 9-1, or a variable affecting the relationship between inputs *L*, *K*, *N*, and *E* and output *Y*. From the latter perspective, technologies are skills, knowledge, procedures, and activities for transforming inputs into outputs, and an increased *T* reduces inputs per output (Fransman 1986:23).

The scale of production is a variable that might have been included in Equation 9-1, With a given technology, increasing the inputs – labor, capital, natural resources, and entrepreneurship – by some multiple may not result in the same multiplication in output because of economies or diseconomies of scale.

Because our focus is on income or production per worker (or per person), we could restate Equation 9-1 with the independent variable Y/L or Y/P (with *P*, population). In this case, the production function would become more complex.

The next two chapters concentrate on the role of the labor force in economic development. Chapter 11 discusses capital and technology, Chapter 12 entrepreneurship, and Chapter 13 natural resources, land, and the environment in economic growth.

Employment Problems in LDCS

You cannot understand LDC unemployment unless you realize how it is different from that in the West. The openly unemployed in LDCs are usually 15–24 years old, educated, and residents of urban areas. The unemployed in LDCs, usually supported by an extended family in a job search, are less likely to be from the poorest one-fifth of the population than in DCs.

Still, the employment problem is of major concern to developing countries. Obviously, providing adequately paid, productive jobs for the very poor is a major way of reducing poverty and inequality in LDCs. High unemployment rates represent a vast underutilization of human resources; the unemployed, who are most often young, urban, educated males, are a potential source of social unrest and political discontent (Nafziger and Auvinen 2003:45–48).[1]

[1] The *Economist* (2003a:48) reports on popular unrest by "*piqueteros*, jobless protesters from the metropolitan rust belt," who blocked the city center, "forced the resignation of President Fernando de la Rua, and ushered in Argentina's traumatic devaluation and debt default." The *piquetero* movement originated "in the arrival of mass unemployment, for the first time in modern Argentina, in the mid-1990s." Unemployment was 16 percent in May 2003.

In the West, economic development was accompanied by a large internal and international migration from rural areas, where technical progress freed labor, to urban areas, where rapid, industrial expansion increased labor demand. Many economists expected that rapid industrialization would resolve the employment problem in LDCs. Unfortunately, for reasons to be discussed later, this strategy of rapid industrial growth did not have the same results in LDCs as in the West.

Scope of the Chapter

The next two sections of this chapter discuss the types of underutilized labor and the extent of LDC unemployment and underemployment. The subsequent section examines whether LDC industrial expansion can absorb labor force growth. Following that, we look at disguised unemployment in agriculture. We review the Lewis model and examine the Harris–Todaro model of rural–urban migration and consider why Western explanations for unemployment may not apply to LDCs. After that, we explain LDC unemployment by looking at LDC technology, factor-price distortions, and educated labor markets. The final section considers policies to reduce unemployment.

Dimensions of Unemployment and Underemployment

The openly **unemployed** refer to those in the labor force without work but available and seeking employment. Unemployment as a percentage of the labor force (employed plus unemployed), 1998–2001, was estimated as 3.7 percent in East Asia, South Asia, and the Pacific, 8.2 percent in China, 9.2 percent in Latin America and the Caribbean, 5.9 percent in the Middle East, 14.2 percent in Africa, 11.1 percent in developing Europe and Central Asia, and 6.2 percent in high-income countries (World Bank 2003h:52–53; International Labour Organization 2000:282; Hu 2001:131–134). Yet unemployment rates moved cyclically, peaking during periods of recession and adjustment to chronic balance-of-payments deficits (Horton, Kanbur, and Mazumdar 1991:531–558).

These unemployment rates have substantial margins of error. Statistics from the usual sources, household surveys, whereas generally more reliable than data from unemployment registries or insurance systems, may be deficient because of inadequate infrastructure, errors in the sampling method, and the inexperience and lack of training of interviewers and supervisors (International Labour Office 1995:15–21).

Who are the unemployed in LDCs? Mainly city residents – unemployment in urban areas is twice that of rural areas. Most unemployed are first-time entrants to the labor force: The unemployment rate for youths, 15 to 24, is twice that of people over 24. The unemployed are often women – although there are fewer unemployed females than males, the rate for women is higher (worldwide 6.4 percent unemployed to 6.1 percent for men) (ILO 2004). Finally, the unemployed are fairly well educated. Unemployment correlates with education until after secondary levels, when it begins to fall (Squire 1981:66–69). These patterns are explained later in the chapter.

Most countries distinguish people who work short hours from those who work full time. Students, retired people, and houseworkers who work a few hours usually do not identify themselves with their employment status. Part-time workers are people who voluntarily work short hours.

To the unemployed, we must add the **underemployed**, those who work less than they would like to work. The **visibly underemployed** are workers who are compelled to work short hours as an alternative to being out of a job. Invisible underemployment results from an inadequate use of workers' capacities.

Readers should be skeptical of journalists' reports of combined unemployment and underemployment rates in excess of 50 percent in a depressed country. One reason to be skeptical is that there are no operational guidelines for measuring underemployment, so that most such rates are meaningless (International Labour Office 1995:12–21).

Underutilized Labor

In addition to the openly unemployed, Edgar O. Edwards (1974:10–11) identifies three forms of labor underutilization or underemployment: the visibly active but underutilized – those who are "marking time," including:

1. Disguised unemployment. Many people seem occupied on farms or employed in government on a full-time basis even though the services they render may actually require much less than full time. Social pressures on private industry also may result in disguised unemployment. The concept is discussed in more detail later.
2. Hidden unemployment. Those who are engaged in nonemployment activities, especially education and household chores, as a "second choice," primarily because job opportunities are not (a) available at the levels of education already attained; or (b) open to women, as a result of discrimination. Thus educational institutions and households become "employers of last resort." Moreover, many students may be among the less able. They cannot compete successfully for jobs, so they go to school.
3. The prematurely retired. This phenomenon is especially apparent in the civil service. In many LDCs, retirement age is falling as longevity increases, primarily as a means of creating job opportunities for younger workers (ibid.).

The remainder of the chapter focuses on the openly unemployed, the underemployed, and the disguised unemployed.

Labor Force Growth, Urbanization, and Industrial Expansion

Growing LDC unemployment is caused by the labor force growing faster than job opportunities. From 1950 to 2001, the LDC labor force increased fivefold – from 500 million in 1950 to 2,517 million (World Bank 1979i:48; World Bank 2003c:44). Today's developing countries must contend with a much more rapid labor force growth than the industrialized countries had at a similar stage in their growth. The

labor force in Western Europe, North America, and Japan grew at 0.8 percent a year in the 19th century compared to 1.6 percent per year in the developing countries in 2001–10 (World Bank 2003h:44). (Labor force growth lags behind population growth. China's 1980 to 1985 labor force growth of 2.5 percent yearly was a reflection of population growth in the early to mid-1960s, whereas the 2001 to 2010 annual labor force growth of 0.8 percent is linked to the declining 1985 to 2000 population growth that accompanied an expedited family-planning program. The echo of East Asia's reduced labor force growth at the turn of the 21st century is the falling 1.4-percent yearly population growth that occurred from 1980 to 1985.) It took almost 90 years for the labor force to double in industrialized countries; it now takes about 44 years in the developing countries.

In the United States, the labor force participation for females over age 15 surged from 34 percent in 1950 to 59 percent in 1994. The story, however, is quite different in developing countries, where 80 percent of the world's women live. There is substantial variation in LDC female participation rates and some of these data are unreliable. Still, population economists think that female participation rates in Asia (except China) and Africa fell from 1950 to 1990. In sub-Saharan Africa, where women comprised 42 percent of the agricultural labor force but only 27 percent of the nonagricultural labor force in 1985, the growth of industrial and services shares in the labor force has diminished female labor force participation. In the Middle East, where traditional culture discourages or prohibits women from leaving the safety and sanctity of their homes to work for others, economic growth may even reduce female labor force participation. According to the World Bank (2003h:45): "More women than men continue to be employed in unpaid family work with the largest shares being in Africa and Asia."

According to the International Labour Office (2004), Population Reference Bureau, and World Bank (2003h:44) the female share of the world's labor force (*not* the same as the uncertain global female labor participation rate) increased from 35 percent in 1950 to 36 percent in 1990 and 40 percent in 2003 (1.1 billion of the world's 2.8 billion workers). In LDCs, the female share of the labor force increased from 33 percent in 1950 to 34 percent in 1990 (and was projected to 34 percent in 2025) (Bloom and Brender 1993:8–9).

Economic growth is usually accompanied by a decline in the proportion of labor force in agriculture and an increase in the share of labor in the more productive industrial and services sector. Yet in 1998–2001, 57 percent of the labor force in low-income countries was in agriculture and only 20 percent in industry, whereas in middle-income countries, 46 percent was in agriculture and 25 percent in industry (see Table 4-1).

Annual industrial employment expanded at 0.5 percent of the total labor force in developing countries in 1987–92 – higher than the 0.3 percent figure for industrialized Europe at the turn of the 20th century (U.N. Development Program 1990:157, 167; U.N. Development Program 1994:163, 174).

Because of fast labor force growth, industry in today's developing countries absorbs only 25–35 percent of the increased labor force, compared to about 50 percent in Europe in 1900. Let us illustrate. Assume the labor force is growing at 2.7 percent

TABLE 9-1. Growth of the Labor Force, 1950–2010

	Average annual percentage growth rate					
	1950–60	1960–70	1970–80	1980–92	1992–2000	2000–10
East Asia and Pacific[a]	2.1	2.4	2.4	2.1	1.8	1.1
South and Southeast Asia	1.4	1.7	1.8	2.1	1.9	2.0
Latin America and Caribbean	2.2	2.4	3.1	2.5	2.3	1.9
Middle East and North Africa	1.6	1.9	3.0	3.2	3.2	3.0
Sub-Saharan Africa	1.7	2.2	2.4	2.5	2.7	2.2
Developing Europe and Central Asia	1.1	0.8	1.4	1.1	0.2	0.5
Developing countries	1.6	1.8	2.3	2.2	1.9	1.6
Developed countries	n.a.[b]	1.2	1.3	0.6	0.4	0.4

[a] Excludes Japan.
[b] Not available.
Sources: World Bank 1979i:47; Squire 1981:44–45; World Bank 1988i:282–283; World Bank 1994i: 210–211; World Bank 2003h:44).

per year, the rate for the least developed countries of sub-Saharan Africa from 1992 to 2000. Assume agricultural employment remains constant, so that growth is in industry and services. The nonagricultural sector in these African countries in the first decade of the 21st century employs 33 1/3 percent of the labor force. This sector would have to increase its total employment 8.1 percent yearly to absorb a labor force growth of 2.7 percent (that is, $0.33\ 1/3 \times 0.081 = 0.027$). Table 9-2 indicates that although two sub-Saharan countries increased manufacturing output by 11 percent or more per year, this growth substantially exceeds manufacturing employment growth in all sub-Saharan countries. Indeed, only two countries listed, South Korea and Taiwan, increased manufacturing employment by more than 8 percent. Both countries had a rapid rate of industrial growth and an emphasis on labor-intensive manufactures, especially in exports. Because *nonagricultural* employment rarely grows faster than *manufacturing* employment, achieving the needed employment growth in most LDCs is difficult (Gregory 1980:673–700; World Bank 1979h:46; U.N. Development Program 1994:162–163).

This pessimistic scenario describes much of the sub-Sahara in the 1990s (see Table 9-1), and for Group I: LLDCs Mali, Chad, Benin, Central African Republic, Burundi, Rwanda, Tanzania, Congo-Kinshasa, Somalia, Sudan, Ethiopia, and Eritrea, but not for Group II: Senegal, Nigeria, Cameroon, Côte d'Ivoire, Congo-Brazzaville, Kenya, Zambia, Malawi, Mozambique, and South Africa during

TABLE 9-2. Industrialization and Employment Growth in Developing Countries

Region/Countries	Annual manufacturing output growth[a] (in percentage), 1963–69	Annual manufacturing employment growth (in percentage), 1963–69
Africa		
Algeria	−0.5	−27.0
Egypt	11.2	0.7
Ethiopia	12.8	6.4
Ghana	10.6	6.3
Kenya	6.4	4.3
Nigeria	14.1	5.7
Uganda	6.6	4.8
Asia		
Korea, Rep. of	18.4	13.0
India	5.9	3.3
Israel	12.1	3.0
Pakistan	12.3	2.6
Philippines	6.1	4.8
Taiwan	16.8	13.3
Thailand	10.7	−12.0
Latin America		
Brazil	6.5	1.1
Chile	4.8	4.2
Colombia	5.9	2.8
Costa Rica	8.9	2.8
Dominican Rep.	1.7	−3.3
Ecuador	11.4	6.0
Panama	12.9	7.4

[a] More precisely annual growth rate in the value added of manufacturing to GNP.
Source: Morawetz 1974:492–495.

the first decade of the 21st century. Group II, whose labor force is growing slower than 2.7 percent yearly or whose nonagricultural sector is in excess of 40 percent, does not require such a large percentage increase in nonagricultural employment.

Sluggish employment growth in the industrial and services sectors has contributed to high rates of urban unemployment, underemployment, and low rural productivity. The rest of this chapter explores the relationship between rural development and productivity, and labor migration from rural to urban areas and the consequent rising urban unemployment.

Disguised Unemployment

Many economists believe **disguised unemployment**, that is, **zero marginal revenue productivity of labor**, is endemic among LDC agricultural labor: Withdrawing a

labor unit from agriculture does not decrease output. *Disguised unemployment* was a term first used during the Great Depression to describe workers in DCs who took inferior jobs as a result of being laid off. Between the 1930s and early 1950s, LDCs had little visible industrial unemployment, so economists surmised that the LDC counterpart of mass unemployment in the West was disguised unemployment: People continued to work on the farm despite depressed conditions. At that time, foreign experts viewed LDC agricultural production as inefficient. Compared to workers in advanced economies, agricultural workers in LDCs seemed to be producing little and appeared to be idle much of the time. Some agricultural economists assumed that peasant agriculture could be organized to employ all farm workers 10 hours a day, 6 days a week, all year long. But disguised unemployment had many mistaken premises. Many observers misunderstood the seasonality of LDC agricultural work and the difference in economic behavior between subsistence and commercial farmers (Chapter 7) (Kao, Anschel, and Eicher 1964:129–144).

The theoretical basis for zero marginal productivity of labor was the concept of **limited technical substitutability of factors**. Economic theory frequently assumes that you can produce a good with an infinite number of combinations of capital and labor, adjusting continuously by substituting a little more of one factor for a little less of another. However, in practice, there may be only a few productive processes available to a LDC, these being perhaps highly mechanized processes developed in the capital-abundant West. The extreme case is where production requires an unalterable ratio of capital to labor, so that the capital available to the economy cannot fully employ those in the labor force (Eckhaus 1955:539–565). In peasant agriculture, labor less than fully employed is supposedly reflected in disguised unemployment.

However, the assumption of rigid factor proportions in LDC agriculture is not correct. Jacob Viner (1957:19) notes,

> I find it impossible to conceive of a farm of any kind on which, other factors of production being held constant . . . it would not be possible, by known methods, to obtain some addition to the crop by using additional labor in more careful selection and planting of the seed, more intensive weeding, cultivating, thinning, and mulching, more painstaking harvesting, gleaning and cleaning of the crop.

Whether or not disguised unemployment exists depends on how an economist defines the term *marginal unit*. Zero marginal productivity in agriculture is much less plausible if it refers to a *marginal hour of work* rather than a *marginal worker*. It is not difficult to imagine a village or clan applying simple and unchanging techniques and capital equipment to a plot of land whose size has remained the same for years. Because financial incentives do not work and frequent negotiations would be costly, tasks are assigned by custom. People of the same age and sex work about the same amount of time and get the same wage. Everyone is fed to a subsistence level as long as enough food is available. If population and the labor force increase, for example, by one-fifth, each worker's hours decrease by one-fifth. Output does not change. However, even if an extra worker's output is zero, an extra hour's output may

be considerable. Where hours worked is the relevant measure, labor has a positive marginal productivity.

Even though capital–labor ratios are alterable in agriculture, they might not be so in industry, especially in such sectors as steel or chemicals. The last resort for labor not employed in profit-maximizing industry is with the clan, or extended family, in agriculture. Agriculture's absorption of this labor means marginal productivity and wage that will be lower than in industry. Yet the possibilities of substantial labor-intensive agricultural jobs, as Viner indicates, means that the marginal product of agricultural labor would be positive.

Do field investigations support this supposition? Several studies between 1930 and the early 1950s purported to show that LDC output in agriculture remained constant or increased with reduced labor. But these studies lacked evidence that capital formation and the level of technology remained constant (Kao, Anschel, and Eicher 1964:129–144). Obviously, labor's marginal productivity can be positive – even if output expands with less labor – if capital and technology increase.

Rural–Urban Migration

Although overall the LDC labor force grows at an annual rate of 1.6 percent, the urban labor force and population are growing annually by 2.4 percent! The urban share of total LDC population has grown from 27 percent in 1975 and 35 percent in 1992 to 40 percent in 2003 (75 percent in Latin America, 38 percent in Asia, and 33 percent in Africa, compared to 75 percent in DCs and 47 percent for the world total) and is projected to increase to 47 percent in 2010 and 56 percent in 2030 (Cohen 1976:12–15; U.N. Department of Economic and Social Information and Policy Analysis 1993:74–75, 106–107; World Bank 1994i:210–211, 222–223; U.N. Development Program 1994:148–149; U.N. Population Division 2002; Population Reference Bureau 2003). From 1975 to 2000, the number of cities in LDCs with populations over 1 million has been increasing from 90 to 300. Twenty-seven LDC urban agglomerations had populations of at least 10 million and three agglomerations (Mumbai, India; Sao Paulo, Brazil; and Mexico City, Mexico) had at least 15 million in 2000 (Table 9-3).

Low returns to agriculture and the prospect of higher wages in industry spur migration from rural to urban areas. A substantial proportion of the growth in the urban labor force is because of such migration, especially in predominantly agricultural countries that are newly industrializing. Thus, migration to the cities is a larger contributor than natural population growth to urban labor growth in sub-Saharan Africa, the least industrialized LDC region, than it is in more industrialized Latin America, where natural increase is the major source of urban growth.[2]

[2] The merging or expansion of villages can create a statistical illusion of townward migration. For example, two villages of 2000 each can, through natural increase, expand their builtup areas until they meet to form a single village of 5000, the usual threshold for reclassification as an urban area. Mumbai and Delhi, India, and Kuala Lampur, Malaysia, contain villagelike enclaves (Lipton 1977:225–226).

TABLE 9-3. Populations of Urban Agglomerations, 1950, 1970, 1990, 2000, and 2015 (in millions) – ranked by 2015 population

Urban agglomeration	1950	1970	1990	2000	2015
Tokyo, Japan	6.9	16.5	25.0	26.4	26.4
Mumbai, India	2.9	5.8	12.2	18.0	26.1
Lagos, Nigeria	0.6	2.1	7.7	13.4	23.2
Dakha, Bangladesh	0.5	1.6	6.6	11.5	21.1
Sao Paulo, Brazil	2.4	8.1	18.1	17.8	20.4
Karachi, Pakistan	1.3	3.9	7.9	11.9	19.2
Mexico City, Mexico	3.1	9.1	15.1	16.2	19.2
New York City, U.S.	12.3	16.2	16.1	16.6	17.4
Jakarta, Indonesia	1.6	3.9	9.2	13.4	17.3
Kolkata, India	4.4	6.9	10.7	12.9	17.3
Los Angeles, U.S.	4.0	8.4	11.5	13.2	14.5
Shanghai, China	5.3	11.2	13.4	12.9	13.6

Sources: U.N. Department of Economic and Social Information and Policy Analysis 1993:126–127, 139–143; U.N. Population Division 2002.

THE LEWIS MODEL

Remember the Lewis model in Chapter 5 that explained how LDC economic growth originated from the increase in the industrial sector relative to the subsistence agricultural sector. The Lewis model also explains migration from rural to urban areas in developing countries. The simplest explanation for rural–urban migration is that people migrate to urban areas when wages there exceed rural wages. Arthur Lewis elaborates on this theory in his explanation of labor transfer from agriculture to industry in a newly industrializing country. In contrast to those economists writing since the early 1970s, who have been concerned about overurbanization, Lewis, writing in 1954, is concerned about possible labor shortages in the expanding industrial sector.

THE HARRIS–TODARO MODEL

The Lewis model does not consider why rural migration continues despite high urban unemployment. John R. Harris and Michael P. Todaro, whose model views a worker's decision to migrate on the basis of wages *and* probability of unemployment, try to close this gap in the Lewis model. They assume that migrants respond to urban–rural differences in expected rather than actual earnings. Suppose the average unskilled rural worker has a choice between being a farm laborer (or working his or her own land) for an annual income of Rs. 3000 or migrating to the city where he or she can receive an annual wage of Rs. 6000. Most economists, who assume full employment, would deduce that the worker would seek the higher paying urban job. However, in developing countries with high unemployment rates, this supposition might be unrealistic. Assume that the probability of the worker getting the urban job during a

1-year period is 20 percent. The worker would not migrate, as the **expected income** is Rs. 6000 × .20, or Rs. 1200, much less than Rs. 3000 (3000 × a probability of 1) on the farm. But if the probability of success is 60 percent, expected urban earnings would be Rs. 6000 × .60, or Rs. 3600. In this case, it would be rational for the farm worker to seek the urban job. And because most migrants are young (under 25), it would be more realistic to assume an even longer time span in the decision to migrate. The migrant may consider lifetime earnings. Thus, if the present value of expected lifetime earnings in the urban job is greater than on the farm, it would be rational to migrate.

According to Harris and Todaro, creating urban jobs by expanding industrial output is insufficient for solving the urban unemployment problem. Instead, they recommend that government reduce urban wages, eliminate other factor price distortions, promote rural employment, and generate labor-intensive technologies, policies discussed later (Harris and Todaro 1970:126–142; Todaro 1971:387–413).

CRITICISMS OF THE HARRIS–TODARO MODEL

Even without amenities, an ILO study indicates that the ratio of average urban to rural income is more than 2 in Asia and Latin America and 4–5 in Africa (after adjustments for living costs). Assuming a ratio of 2, urban unemployment must be 50 percent to equate urban and rural expected income. But LDC urban unemployment rarely exceeds 10–20 percent, indicating migration does not close the urban and rural expected wage gap. We can explain the gap by adding to the Harris-Todaro urban **formal** and rural sectors the urban **informal sector**, where petty traders, tea shop proprietors, hawkers, street vendors, artisans, shoe shiners, street entertainers, garbage collectors, repair persons, artisans, cottage industrialists, and other self-employed generate employment and income for themselves in labor-intensive activities with little capital, skill, regulation, and entry barriers (ILO 1972:5–8).[3] These small enterprisers have low start-up costs and profit margins, negotiate agreements outside the formal legal system, and hire workers at less than minimum wage. A substantial share of the LDC urban labor force is relegated to the informal sector: 34 percent of Mexico City's; 45 percent of Bogota, Colombia's; 43 percent of Kolkata, India's; and 50 percent of Lagos, Nigeria's.

The informal-sector's labor supply is affected primarily by wages and population growth in the rural sector. The substantial absorption of rural emigrants in the informal sector explains why migration stops long before rural expected incomes attain urban formal sector ones. Many migrants are neither unemployed nor receiving the prevailing formal sector wage but are working in informal jobs, which facilitate their entry into the urban economy (Sethuraman 1981:17; Jagannathan 1987:57–58; Lecaillon, Paukert, Morrisson, and Germidis 1984:54–57;

[3] A part of this sector includes "the urban in-migrant who, instead of doing absolutely nothing, joins Bombay's army of underemployed bootblacks or Delhi's throngs of self-appointed (and tippable) parking directors, or who becomes an extra, redundant salesman in the yard goods staff of the cousin, who according to custom, is going to have to provide him with bed and board anyway" (Lewis 1962:53). Underemployment of this type is widespread in Asian, African, and Latin American cities.

Cole and Sanders 1985:481–494; Gillis, Perkins, Roemer, and Snodgrass 1987:190–191).

In some economies, especially former socialist economies, many people consider the informal (even the small private) sector to be questionable. Soviet attitudes toward the "black" market or predatory economy carried over to attitudes to private or informal enterprises in the former Soviet Union in the first decade of the 21st century: "Money earned through state jobs was respectable and public; money or goods earned in the so-called second (private) economy were questionable, even 'dirty.' The second economy had flourished in . . . the Soviet Union, but individuals used their official affiliations as a cover when their actual wealth derived from bribes or other forms of corruption" (Dudwick et al. 2003:220–221).

THE EFFECT OF OTHER AMENITIES

The decision to migrate is not based merely on differences in earnings. Workers considering migration will look at many other factors; they will compare housing, shops, transport, schools, hospitals, and other amenities in the two places. This decision encompasses much more than the difficulty of keeping youths on the farm once they have seen the bright lights of Paris, Lagos, New Delhi, or São Paulo. In fact, it is rare in developing countries for a rural youth to seek a city job without family support. Typically, job applicants are sent to the city by their families to diversify family income. When in the city, they may stay with relatives during the job search. The Western stereotype of young urban immigrants as rebels against the family is not common in developing countries, where young people rarely have cars or money essential for independence and they depend heavily on the family for employment, a good marriage, and economic security.

The concentration of social services in LDC urban areas has led to overurbanization, especially in Africa. A visitor who ventures beyond an African capital city is likely to be shocked by the economic and social disparity existing between the city and the hinterlands. For example, in 1968, the eight-story, 500-bed Centre Hospitalier Universitaire, one of the largest and most modern hospitals in Africa, was built in the affluent section of Abidjan. But the project's funds, given by the French government, were originally intended for twelve regional hospitals in Côte d'Ivoire. Housing, transport, sewerage, fuel, and staple foods are often government subsidized in urban areas, where their cost is far more than in rural areas (Gugler and Flanagan 1978).

WESTERN APPROACHES TO UNEMPLOYMENT

The classical view of employment, prevalent in the West for about 100 years before the Great Depression, was that, in the long run, an economy would be in equilibrium at full employment. Flexible wage rates responding to demand and supply ensured that anyone who wanted to work would be employed at the equilibrium wage rate. In the idealized world of classical economics, there would never be involuntary unemployment!

John Maynard Keynes's general theory of income and employment was a response to failure of the classical model in the West in the 1930s. In the Keynesian model, a country's employment increases with GNP. Unemployment occurs because aggregate (total) demand by consumers, businesses, and government for goods and services is not enough for GNP to reach full employment. The Keynesian prescription for unemployment is to increase aggregate demand through more private consumption and investment (by reduced tax rates or lower interest rates) or through more government spending. As long as there is unemployment and unutilized capital capacity in the economy, GNP will respond automatically to increased demand through higher employment.[4]

However, Keynesian theory has little applicability in LDCs. First, businesses in LDCs cannot respond quickly to increased demand for output. The major limitations to output and employment expansion are usually on the supply side, in the form of shortages of entrepreneurs, managers, administrators, technicians, capital, foreign exchange, raw materials, transportation, communication, and smoothly functioning product and capital markets. In fact, where there are severe limitations in supply response (where output or supply is price inelastic), increased spending may merely result in higher inflation rates.

Second, open unemployment may not be reduced even if spending increases labor demand. As indicated previously, open unemployment occurs primarily in urban areas. However, labor *supply* in urban areas responds rapidly to new employment opportunities. The creation of additional urban jobs through expanded demand means even more entrants into the urban labor force, mainly as migrants from rural areas.

Third, LDCs cannot rely so much as DCs do on changes in fiscal policy (direct taxes and government spending) to affect aggregate demand and employment. Direct taxes (personal income, corporate income, and property taxes) and government expenditures make up a much smaller proportion of GNP in LDCs than in DCs (see Chapter 14).

Fourth, as the discussion concerning Table 9-2 suggested, employment growth is likely to be slower than output growth. In fact in some instances, increasing employment may decrease output. In the 1950s, when Prime Minister Jawaharlal Nehru asked economists on the Indian Planning Commission to expand employment, they asked him how much GNP he was willing to give up. The idea of a tradeoff between output and employment, which astounded the Indian prime minister, is consistent with a planning strategy in which capital and high-level technology are substituted for labor in the modern sector. For example, milling rice by a sheller machine rather than pounding by hand increases output at the expense of employment. However, this tradeoff between employment and output may not be inevitable, as we indicate in the discussion of employment policies.

[4] Todaro (1977:174–179) has a thorough discussion of the classical and Keynesian theories of employment.

Causes of Unemployment in Developing Countries

This section focuses on the reasons for urban unemployment in LDCs. As indicated earlier, the LDC urban labor force is growing at more than 2 percent per year as a result of population increases and rural–urban migration. The first two parts of this section indicate why this labor supply cannot be absorbed. Then we look at supply and demand factors that contribute to high unemployment rates among the educated in LDCs.

THE UNSUITABILITY OF TECHNOLOGY

As indicated in Chapter 4, most low-income countries and many middle-income countries are dual economies having a modern manufacturing, mining, agricultural, transportation, and communication sector. But organizational methods and ideas, management systems, machines, processes, and so on are usually imported from the DCs to run this modern sector. This technology was designed primarily for the DCs, which have high wages and relatively abundant capital. But as we have pointed out earlier, technology developed for DCs may not be suitable for LDCs, where wages are low and capital is scarce. On the basis of capital resources available, Frances Stewart (1974:86–88) estimates that the appropriate capital stock per person in the United States might be eight times that of Brazil, 20 times that of Sri Lanka, and over 45 times that of Nigeria and India.

Often, LDCs do not adopt more appropriate technology because of the rigid factor requirements of the production processes in many industries. There simply may be no substitute for producing a good with a modern, highly capital-intensive technique. China learned this the hard way during its Great Leap Forward in 1958 to 1960, which actually resulted in a great leap backward in industrial output. At that time, China emphasized labor-intensive projects that included digging canals, repairing dams, leveling mountains, and building backyard furnaces. Take the case of iron and steel. In 1958, iron and steel utensils and fixtures were taken from Chinese households for use in hundreds of thousands of backyard, steel-and iron-smelting blast furnaces. To one observer, these furnaces shone like innumerable glowworms in the night. However, by 1959, China's backyard furnaces were producing only one-fourth of the planned annual output of 20 million tons of pig iron. Some of this metal was too brittle even to use for simple farm tools. By 1960, the backyard furnaces were abandoned in order to concentrate on large, conventional smelting, blast, and open-hearth furnaces (Prybyla 1970:256, 276–277, 299).

When capital-labor ratios in industry are inflexible, the small amount of capital available in LDCs may not make it possible to employ all the labor force.

FACTOR PRICE DISTORTIONS

However, even when there is a wide choice of various capital-labor combinations, LDCs may not choose labor-intensive methods because of **factor price distortions**

that make wages higher and interest rates and foreign exchange costs lower than market-clearing rates.

High wages in the modern sector. Marx's collaborator, Friedrich Engels, who wrote in the late 19th century, referred to Britain's regularly employed industrial proletariat, with its wages and privileges in excess of other European workers, as a **labor aristocracy**. Today, some scholars apply Engels's concept to LDCs, pointing out that urban workers tend to be economically far better off than the rural population.

It is true that the prevailing wage for unskilled labor in the modern sector in LDCs is frequently in excess of a market-determined wage because of minimum-wage legislation, labor union pressure, and the wage policies of foreign corporations operating in these countries. Often trade unions try to influence wages in the modern sector through political lobbying rather than collective bargaining. Frequently, unions became political during a colonial period, when the struggle for employment, higher wages, and improved benefits was tied to a nationalist movement. After independence was gained, the political power of the unions often led to the widespread establishment of official wage tribunals, which frequently base a minimum living wage on the standards of more industrialized countries rather than on market forces in their own country. When foreign firms pay higher wages than domestic firms, the motive may be to gain political favor, avoid political attack, and prevent labor strife, as well as to ensure getting workers of high quality.

In many LDCs, the income of workers paid the legal minimum wage is several times the country's per capita GNP. Even when we adjust for the average number of dependents supported by these workers, the per capita incomes of their households are still usually in excess of the average for the country as a whole. This disparity exists because the minimum wage (when enforced) usually applies to only a small fraction of the labor force, workers in government and in firms with, say, 15 to 20 or more employees. The wage structure for these workers in the **formal sector** is usually higher than those with comparable jobs in the **informal sector**. Wage–employment studies indicate that wages higher than equilibrium reduce employment in the formal sector.

Stabilization and wage–price decontrol during the 1980s and 1990s, usually under IMF and World Bank auspices, contributed to reductions in aggregate demand, real wages, and inflation rates. Food prices increased and real wages fell as Africa decontrolled agricultural and industrial prices during the 1980s. Compared to 1980, real nonagricultural wages dropped considerably during adjustment programs – in Tanzania by 40 percent to 1983; in Zambia, 33 percent to 1984; in Malawi, 24 percent by 1984; in Kenya, 22 percent by 1985; in Zimbabwe, 11 percent by 1984; in Mauritius, 10 percent by 1985; and in Swaziland, 5 percent by 1983 (Nafziger 1993:156–158). Also compared to 1980, Latin America underwent substantial real-wage reductions – in Bolivia by 50 percent to 1986, and in Chile by 27 percent to 1986 (Horton, Kanbur, and Mazumdar 1991:549). Unfortunately, adjustment programs that contributed to these real-wage losses were accompanied by reduced government social spending that removed social safety nets, such as food subsidies,

health expenditures, and free primary education. Thus, any country reducing wage distortions needs programs to protect the basic needs of urban wage earners during the transition and help them retrain for jobs in expanding sectors. For example, whereas the adjustments of the 1980s in Africa and Latin America reduced the incomes of wage earners in domestic-oriented industries, public sector employees, and informal-sector workers, these same adjustments increased the incomes of commercial farmers, their wage labor, export-oriented industries, and traders benefiting from exchange-rate and price changes (Commander 1989:239).

Low capital costs. Capital costs in LDCs may be artificially low. Programs encouraging investment, such as subsidized interest rates, liberal depreciation allowances, and tax rebates are common. But at least as important are policies that keep the **price of foreign exchange**, that is, the price of foreign currency in terms of domestic currency, lower than equilibrium.

The LDC central bank restrictions on imports and currency conversion, although ostensibly made to conserve foreign exchange, may actually create foreign currency shortages by keeping the foreign exchange price too low. For example, such restrictions may allow Nigeria to keep the foreign exchange rate at N25 = $1 rather than a market-clearing rate of N50 = $1. This low price of foreign currency means that an imported machine tagged at $1,000 costs N25,000, instead of N50,000 (at equilibrium exchange rates). The low foreign exchange price gives importers of capital goods (as well as other goods) an artificial inducement to buy. However, because most countries assign a high priority to importing capital goods, these importers have a better chance of acquiring licenses for foreign exchange from the central bank than do other importers (see Chapter 17).

The low foreign exchange price and the official preference for imported capital goods combine to make the actual price of capital cheaper than its equilibrium price. And when this occurs with wages higher than market rates, LDCs end up using more capital-intensive techniques and employing fewer people than would happen at equilibrium factor prices. Distortions in these prices and fairly inflexible factor requirements for some production processes result in higher unemployment. The end effect is increased income inequalities between property owners and workers and between highly paid workers and the unemployed.

Removing capital cost distortions in India. In 1991–95, as part of liberalization, the World Bank and IMF required India to reduce distortions of capital, foreign exchange, and other financial markets. For India, this meant raising the real rate of interest to a competitive level, substantial devaluation of the rupee, and reduced protection.

Several entrepreneurs unable to expand because of a lack of credit during nonprice rationing of bank loans have been able, since 1991, to acquire capital for innovation and expansion. Others, including managers of large private capital-intensive steel enterprises, have complained about how higher rates of interest have choked off planned expansion. Overall, the higher interest rates have rationalized bank

lending. However, several small- and medium-sized entrepreneurs have complained about the continuing subsidies for competitors in the public sector (for example, steel), where lower decontrolled prices after 1991 has meant many units in this sector continue to expand despite generating surplus less than a competitive rate of interest.

The liberalized foreign-exchange regime (higher rupee price of the dollar and delicensing of many foreign purchases) is a welcome change for a South Indian marble products producer, who has reduced his time for clearing imported machines through Indian customs from an average of one month before 1991 to two days since 1993. Several other entrepreneurs have found that foreign-currency decontrol has created easier access to imports to improve plant and machinery (albeit at higher rupee prices) and spurred them to seek markets overseas (Nafziger and Sudarsana Rao 1996: 90–103).

In India, state-owned enterprises have opposed financial liberalization, fearing a substantial decline in output with a withdrawal of favorable access to bank credit. Labor unions are disproportionately represented by workers in state-owned enterprises and in government, who generally enjoy relatively high wages and secure jobs. Unions are important political agents, providing financial and electoral support for political parties, such as the Congress Party and the Bharatiya Janata Party. The fact that public firms and large private firms with long-standing access to input licenses are supported by politically powerful unions threatens bank, interest-rate, and foreign-exchange deregulation in India.

UNEMPLOYMENT AMONG THE EDUCATED

The secondary school enrollment rate is 44 percent in low-income countries and 70 percent in middle-income countries (World Bank 2003h:82). Regrettably, scattered studies suggest that LDCs, especially those with secondary enrollment rates more than 50 percent, have unemployment rates of well over 10 percent among persons with some secondary schooling. Sri Lanka, Iran, and Colombia, where the overwhelming majority of youths receive some secondary education, have unemployment rates in this educational group in excess of 15–20 percent. The unemployment rate for people with some primary education may be close to 10 percent; for those with some postprimary education even lower; and those with no schooling lower yet. Even so, there is no evidence of a rising unemployment trend among the educated in LDCs, although there is higher unemployment in countries that have instituted universal primary education or rapidly expanded secondary enrollment during the past decade.

Unemployment among the educated appears to be associated with how the labor market adjusts to an influx of school graduates (and dropouts). Although political pressures force many LDC public education systems to expand, there are rarely enough jobs for these people once they graduate. Job aspirations among the educated simply cannot be met. During the initial years of educational expansion and replacement of foreigners by locals just after independence from colonial rule, graduates were readily absorbed in high-level positions in the civil services, armed forces,

government corporations, schools, and private business. However, in subsequent years, there have been far fewer vacancies at these levels.

High unemployment among the educated is in part because the wage structure adjusts slowly, especially if the public sector is the major employer of educated workers. Frequently in government service, wages are based on the cost of acquiring the training essential to meet the legal requirements for the job rather than on labor supply and productivity. The signals from this perverse wage-setting mechanism do not provide consistency between educational output and employment opportunities. Furthermore, graduates may be encouraged to wait for well-paid jobs rather than immediately accept a job that pays much less. If the wage difference is high enough and the probability of obtaining a higher paid job is sufficiently large, a period of job seeking will yield a higher expected, lifetime income.

These explanations are consistent with the unemployment patterns indicated earlier. Illiterate people cannot wait for a better paid job. They remain on the farm or take the first job offer. At the other extreme, highly trained people are scarce enough in most LDCs that university graduates get well-paid jobs immediately. But those in between, primary and secondary school graduates (or dropouts), are neither assured of high-paying jobs nor completely out of the running for them. Thus, there may be a substantial payoff in a full-time search for a job. The educated unemployed tend to be young, with few dependents, and supported by their families. Most eventually find work, usually within two years, although some have to lower their job expectations (World Bank 1980i:51). Mark Blaug, P. R. G. Layard, and Maureen Woodhall (1969:90) found that whereas 65 percent of secondary school graduates in India were unemployed in the first year after completing their education, only 36 percent were in the second year, 20 percent in the third, 11 percent in the fourth, 6 percent in the fifth, and 2 percent in the sixth. Except for possible political discontent, the costs associated with this unemployment are not so serious as they might appear.

Policies for Reducing Unemployment

POPULATION POLICIES

As we have already said, rising LDC unemployment is caused by slowly growing job opportunities and a rapidly growing labor force. Family-planning programs and programs to improve health, nutrition, education, urban development, income distribution, and opportunities for women can reduce fertility and population growth, thus decreasing labor force size 15 to 20 years hence (Chapter 8). Such fertility reduction should be pursued.

POLICIES TO DISCOURAGE RURAL–URBAN MIGRATION

Unemployment can be reduced by decreasing rural–urban migration. The key to such a decrease is greater rural economic development. As indicated in Chapter 7, this development can be facilitated by eliminating the urban bias in development projects; removing price ceilings on food and other agricultural goods; setting the

foreign exchange price close to a market-clearing rate; increasing capital-saving, technological change in agriculture; locating new industries in rural areas; and providing more schools, housing, food, sewerage, hospitals, health services, roads, entertainment, and other amenities.

However, such expenditures to reduce urban migration may reach diminishing returns quickly. Unemployment among even a fraction of urban migrants may be preferable to widespread low worker productivity in rural areas. In some instances, the problem of urban migration may be more a political than an economic one.

APPROPRIATE TECHNOLOGY

In general, **appropriate technologies** in LDCs use more unskilled labor than in DCs. The use of more appropriate technology can be stimulated by (1) intraindustry substitution, (2) interproduct substitution, (3) greater income equality, (4) providing fewer refined products and services, (5) government purchase of labor-intensive goods, (6) making sounder choices among existing technologies, (7) factor substitution in peripheral or ancillary activities, (8) using less-modern equipment, (9) the local generation of technologies, and (10) the local adaptation of technologies. In addition, policies reducing factor price distortion, as discussed in a subsequent section, encourage the use of more appropriate technology. Let us examine the items in this list more carefully.

1. Encouraging the production of more labor-intensive goods within each industry is possible (for example, manufacturing cotton shirts rather than nylon and sandals instead of fancy leather shoes).
2. A single need may be fulfilled by several goods whose production varies in labor intensity. Housing needs may be more or less fulfilled by the sidewalks of Kolkata, caves, mud huts, multistory apartments, single-family houses, or palaces. In Kolkata bamboo-reinforced mud huts with tin roofs are more labor-intensive (and affordable) than Western-style, single-family dwellings.
3. Macroeconomic studies indicate that goods consumed by the poor are somewhat more labor-intensive than those consumed by the rich. Government policies, including progressive taxes, the subsidized distribution of public goods and essential commodities, and high tariffs or excise taxes on luxury items, may improve income equality. Such policies are likely to increase the demand for labor-intensive goods, such as cotton shirts, sandals, mud huts, and ungraded rice, and reduce the demand for more capital-intensive, luxury goods, particularly imports (Edwards 1974:20; Morawetz 1974:505–506, 512–514).
4. One can remove luxury components from existing goods and services. Poor-quality soap produced with labor-intensive techniques can perhaps substitute for Western detergents. Traditional medicine as practiced by barefoot doctors in China may be used instead of the high-income medicine from the West.
5. Government can influence employment by directing official purchases toward labor-intensive goods.

6. Planners or entrepreneurs may choose a more labor-intensive existing technology. However, David Morawetz's (1974:515–523) survey concludes that the substitution of labor for capital is drastically limited depending on the good specified for production. Labor-intensive methods in textiles, brick-making, road-building, and iron and steel output may be greatly limited if high-quality products are to be produced.
7. Peripheral and ancillary activities, such as materials receiving, handling, packaging, and storage, probably offer more factor substitution than materials processing. It is usually possible to use people instead of forklifts and conveyer belts.
8. Using less modern equipment from DCs (for example, animal-drawn hay rakes or precomputer office equipment) offers some possibilities for more labor-intensive approaches. However, older equipment in good condition is usually not readily available from the industrialized countries.
9. The LDCs can generate technology locally. During the Cultural Revolution from 1966 to 1976, Chinese managers, engineers, and workers were compelled to be inventive, because they were cut off from the outside world. Although Chinese factory workers learned to make their own tools and machines, it was later admitted that this approach was more costly than using available technology.

   The LDCs open to outside techniques can generate some technology through industry research or research organizations designed specifically to producing technology appropriate to their needs and resources. However, many government institutes have failed in developing appropriate technology. Industrial research is usually best done in the context of the producing unit by entrepreneurs, managers, engineers, technicians, and marketing specialists familiar with the industry and the work force. But even this work on labor-intensive technology will not be carried out if factor and product prices are distorted (see later).

   Perhaps the most successful example of generating appropriate technology is the high-yielding wheat varieties used in the Green Revolution in Mexico, India, and Pakistan. Appropriate technology institutes also have been effective in developing natural resources and infrastructure where there is little incentive for private research.
10. Foreign technology may be scaled down to fit LDC skills and resources. Such adaptations in South and Southeast Asia include a five-horsepower tiller, a low-lift water pump, a McCormick-style thresher, and a jeep-type vehicle (Khan 1974:223–233).

Sometimes adaptation may, however, require costly use of scarce engineers, managers, and other skilled persons. It may be cheaper to transfer the technology outright rather than to spend the resources to modify it.

Nor may appropriate technologies always save capital, as it is not the only scarce factor in LDCs. Skilled entrepreneurs, managers, government administrators, and labor may be scarce as well. Thus, capital-intensive, machine-paced, or process-oriented operations, which save on scarce management, may be appropriate in some cases. For example, modern factory methods for making shoes and wooden furniture

use more capital per worker than cottage methods but save on skilled labor, as each operative needs a narrower range of skills than the shoemaker or carpenter who makes the whole product. Thus, if skilled labor is a limitation, using the more modern, capital-intensive methods may be suitable (Morawetz 1974:517).

To conclude this section, there is some scope for more appropriate technology to increase the use of labor. Nevertheless, cheaper alternative technologies to those used in DCs are not as widely available as many economists have thought.

POLICIES TO REDUCE FACTOR PRICE DISTORTION

The LDCs can increase employment by decreasing distortions in the prices of labor and capital. These distortions can be reduced through the following policies: (1) curtailing wages in the organized sector, (2) encouraging small-scale industry, (3) decreasing subsidies to capital investors, (4) revising worker legislation – reviewing termination practices and severance payment requirements, (5) reducing social security programs and payroll taxation, (6) increasing capital utilization, and (7) setting market-clearing exchange rates.

1. Reducing wages increases employment opportunities when the price elasticity of labor demand (minus the percentage change in the quantity of labor demanded divided by the percentage change in the wage for a unit of labor) is greater than one (or elastic). However, wage cuts are not effective when labor demand is inelastic. Labor demand is more inelastic (1) when product demand is inelastic, (2) the smaller the fraction labor is of total cost, (3) the less other factors can be substituted for labor, (4) when factor supplies other than labor are inelastic, and (5) the more inflexible the product's administered price (Samuelson 1980:525). Moreover, although there may be some labor aristocrats around, they do not comprise the bulk of LDC wage earners. Furthermore, care should be taken not to weaken the ability of trade unions to protect worker rights and income shares against powerful employers.
2. Encouraging the informal sector, especially small-scale industry, usually reduces unit wage costs and has a favorable employment effect. Firms with fewer than 50 workers employ over half the industrial labor force in LDCs, including 71 percent in Colombia, 70 percent in Nigeria, and 40 percent in Malaysia (43 percent in Japan and 34 percent in Switzerland!).

   Small firms have a more favorable employment effect than large firms, because they require less capital and more labor per unit of output and because their factor prices are much closer to market prices. Wage legislation often does not apply to, or is not enforced in, small firms; their wages are lower than in large ones. Additionally, the small firm's less-subsidized capital costs are close to market rates.

   Government can encourage small-scale industry through such policies as industrial extension service, technical help, and preferred, official buying. However, subsidized credit and imports for small firms merely encourage the use of more capital-intensive techniques (Morawetz 1974:524–526).

3. As just implied, a country can decrease capital-intensive techniques and unemployment by not subsidizing capital and credit.
4. A number of economists contend that worker legislation in many LDCs holds back industrial employment growth as much as high wages. Such legislation makes it difficult to fire an employee and requires large severance pay when termination occurs. These economists reason that employers may not hire extra workers when they see opportunities for sales expansion if they know that they will not be able to release them if the expansion is only temporary. So far, evidence fails to demonstrate that the effect of these worker policies is positive.
5. A reduction in social security payments and payroll taxes will increase the demand for, and supply of, labor at a given wage and thus increase employment. However, the cost of these policies would be a reduction in overall savings and an increase in poverty among the aged, physically impaired, and in families losing a breadwinner.
6. The LDCs can reduce foreign trade and currency restrictions to raise the price of foreign exchange to a market-clearing rate. This rate discourages using foreign-made capital goods by raising their domestic currency price. This increase in the price of capital will stimulate the greater use of labor-intensive techniques. Furthermore, a foreign exchange rate close to equilibrium is probably a more effective policy for promoting exports and import replacements than subsidies, tariffs, quotas, and licenses, all of which distort the efficient allocation of resources.

Additionally, a simple way of increasing employment is to utilize capital stock more intensively by working two or three shifts rather than one. Since LDCs appear to have low capital utilization rates compared to DCs, employment could be substantially increased if there were enough skilled managers and supervisors for extra shifts.

EDUCATIONAL POLICY

The challenge here is to reform the educational system to achieve a balance between LDC educational output and labor needs. Several strategies are suggested.

1. Where politically feasible, educational budgets in many LDCs should grow more slowly and be more oriented toward primary education and scientific and technical learning. The problem of unemployed secondary school graduates and dropouts is usually greatest where secondary education has expanded rapidly in recent years. In addition, many secondary school graduates are trained in the humanities and social sciences but lack the scientific, technical, and vocational skills for work in a modern economy. Even though rapidly expanding primary education may increase unemployment, such a negative effect is somewhat offset by the higher literacy rate achieved and increased income equality. (See also Chapter 10, which indicates that the rate of return to primary education in LDCs is generally higher than to secondary education.)
2. Subsidies for secondary and higher education should be reduced, as they encourage a surplus of educated people, some of whom become unemployed. In addition as indicated in Chapter 10, they redistribute income to the rich. However, in

order to improve income distribution, subsidies might be made for scholarships for the poor.

3. Increase the flexibility of pay scales. Occupational choice should change with shifts in supply and demand. When there is a surplus of engineers or lawyers (as in India in the early 1970s), salaries should fall, so that both graduates and prospective students will shift to another field.
4. Inequalities and discrimination in both education and employment should be minimized. To reduce the burden on the educational system and improve its performance, LDCs should pursue policies that encourage greater reliance on job-related learning experiences for advancement; they should use successful work experience as a criterion for educational advancement and reduce discrimination in hiring and promotion. In some instances in which the highly educated are severely underutilized, it is because ethnic, regional, and sex discrimination keeps the most qualified workers from finding appropriate jobs.
5. Job rationing by educational certification must be modified. Frequently, overstated job specifications make overeducation necessary for employment. Requiring a secondary education to sweep the factory floor or a university degree to manage a livestock ranch is counterproductive. Employers should be encouraged to set realistic job qualifications, even though the task of job rationing may be made somewhat more difficult (Edwards and Todaro 1974:29–30; Squire 1981:194–205).

The policies on migration, education, technology, and factor price distortions discussed in the last four sections may not always be politically feasible. Governments sometimes lose the political support they need to function when they revise labor codes, curtail wages, eliminate capital subsidies, adjust foreign exchange rates, reduce secondary and higher education subsidies, or make government pay scales more flexible.

GROWTH-ORIENTED POLICIES

Clearly, South Korea and Taiwan achieved rapid employment growth partly through policies such as those we have discussed and partly through rapid economic growth. Other things being equal, faster rates of growth in production contribute to faster employment growth. But other things are not always equal, as suggested by our discussion on rural–urban migration, appropriate technology, factor prices, and the educated labor market.

Conclusion

1. Production depends on the flow of natural resources, capital, labor, entrepreneurship, and technology per unit of time.
2. The openly unemployed, those without a job who are actively looking for one, are usually urban, 15–24 years old, and among the well educated.

3. The underemployed, the visibly active but underutilized, the impaired, and the unproductive are all underutilized in LDC labor forces.
4. The labor force grows faster than job opportunities, so unemployment grows. About one-third of the labor force in least-developed Africa is employed outside agriculture. The labor force in these countries is growing at about 2.7 percent per year. If employment in agriculture remains constant, the industrial sector must increase employment by more than 8 percent yearly to absorb this extra labor. Industrial employment rarely grows this fast in these countries.
5. Although many economists believe that there is widespread disguised unemployment, or zero marginal productivity, in LDC agriculture, the available evidence does not support the contention.
6. Rural–urban migration contributes almost as much to the rapid growth of the urban labor force in LDCs as population growth. Lewis argues that an unlimited supply of underutilized farm labor migrates to urban areas for wages only slightly in excess of rural wages. Harris and Todaro indicate, however, that farm workers considering a move to an urban area consider urban–rural differences in unemployment as well as wages.
7. Keynesian unemployment from deficient aggregate demand is not important in LDCs because of the slow response in output to demand increases, ineffective fiscal policy, rural–urban migrants in the labor market, and possible tradeoffs between employment and output from inappropriate technology.
8. Technology designed for the industrialized countries, which have a relative abundance of capital and scarcity of labor, is often not suitable for LDCs, with their abundant labor and scarce capital. This inappropriate technology increases unemployment. However, in some instances, such as in the iron and steel industries, the capital-labor ratios may be invariable. The LDCs must use the same technology as DCs in such a case.
9. Capital may be priced higher and labor priced lower than equilibrium prices in LDCs because of government wage and social legislation, trade union pressures, and a low price for foreign exchange.
10. The LDC unemployment is higher among the educated than the uneducated because the educated may have unrealistic earnings expectations or job preferences and because wages paid to educated workers are often inflexible.
11. Policies to reduce unemployment include programs to reduce fertility; encourage rural development and amenities; substitute labor-intensive production techniques for capital-intensive approaches; substitute products that use labor more intensively; redistribute income to the poor; increase official purchases from small-scale, labor-intensive firms; generate new technology locally; adapt existing technology; curtail wages in the organized sector; decrease subsidies to capital; increase capital utilization; set equilibrium foreign exchange rates; resist pressures for a too rapid expansion of upper-level education and refuse to subsidize this level of education; increase the share of spending for primary schooling; stress scientific and technical education; improve wage flexibility at the higher levels; and reduce job rationing by educational certification.

TERMS TO REVIEW

- appropriate technology
- capital goods
- disguised unemployment
- entrepreneurship
- expected income
- factor price distortions
- flow
- formal sector
- Harris–Todaro model
- informal sector
- Keynesian theory of income and employment
- labor aristocracy
- limited technical substitutability of factors
- price of foreign exchange
- production function
- stock
- technology.
- underemployment
- unemployment
- visible underemployment
- zero marginal productivity of labor

QUESTIONS TO DISCUSS

1. What inputs determine the level of national product in a given year? Are these inputs stocks or flows?
2. What supply and demand factors for industrial labor explain rising LDC unemployment rates?
3. How widespread is disguised unemployment in LDCs?
4. Explain rural–urban migration in LDCs.
5. What factors contribute to high urban unemployment in LDCs? Why are macroeconomic theories based on Western experience inadequate in explaining this high unemployment?
6. What policies can LDC governments undertake to reduce the unemployment rate?
7. Explain why rural–urban migration persists in the face of substantial urban unemployment (for example, 15 percent or more). How would the Harris–Todaro model explain this situation? Evaluate the Harris–Todaro model.
8. What is the urban informal sector? How does the informal sector labor market affect (or how is it affected by) labor markets in the urban formal and rural sectors?
9. What causes unemployment among the educated in LDCs? What educational policies will reduce this unemployment?
10. What is Lewis's explanation for rural–urban migration? Why do critics think that the Lewis model overstates rural–urban migration?

GUIDE TO READINGS

Reliable data on LDC unemployment are hard to acquire. World Bank (2003h:50–52) and subsequent *World Development Indicators* in paper or on CD-ROM have unemployment figures; the problem with these figures in LDCs is that those with a

large agricultural sector have little open unemployment, thus making comparison difficult.

The International Labour Office's annual *World Employment Report* has information on structure and evolution of the labor force, labor force participation, distribution of the labor force by sector, employment growth, real wages by sector, employment of professionals and technicians, public spending on education and vocational education, economically active population, training programs, education and growth, and employment of women; the ILO's *World Labour Report* has data on labor market demographics, dependency ratios, aging, fertility, life expectancy, social security expenditure, pensions, health care, unemployment benefits, poverty, and income distribution. The ILO's *Global Employment Trends for Women 2004* has detailed data on the employment of women.

Morawetz (1974:492–526) analyzes the inability of modern industry to provide adequate employment opportunities for the rapidly growing LDC labor force. Kao, Anschel, and Eicher (1964:129–144) have a comprehensive review of the theoretical and empirical literature on disguised unemployment in agriculture. Lewis (1954:139–191), Harris and Todaro (1970:126–142), Stark (1984:475–486), and Stark and Levhari (1982:191–196) discuss the determinants of migration from rural and urban areas. World Bank (2003i:107–132) discusses "Getting the Best from Cities," including a section on railway dwellers in Mumbai managing their own resettlement (p. 125). Williamson (1988) analyzes migration and urbanization.

Peattie examines different concepts of the informal sector and why they are so fuzzy. For a critique, see Khundker (1988:1263–1265).

10 Education, Health, and Human Capital

Scope of the Chapter

In the mid-19th century, Abraham Lincoln was esteemed not only for his wit and rhetoric but also for physical prowess in splitting rails and wresting.

Many readers know the ballad of John Henry, born with a “hammer in his hand.” The legend celebrates the raw strength of that “steel-driving man” who, in the late 19th century, raced a steam drill in digging a West Virginia railway tunnel. Man defeated machine, but, alas, John Henry worked so hard that he “keeled over and died.”

Since John Henry, humankind has reduced requirements for manual work as skilled labor and capital have increasingly replaced unskilled labor. As human work has been deskilled, the wage of unskilled relative to skilled work has fallen.

This chapter focuses on education, skilled labor, health, and human capital. Higher income per capita is strongly associated with lower mortality and higher school completion (World Bank 2004i:35).

The Nobel laureate Simon S. Kuznets (1955b:39) argues that the major stock of an economically advanced country is not its physical capital but “the body of knowledge amassed from tested findings and discoveries of empirical science, and the capacity and training of its population to use this knowledge effectively.” The contrast in economic growth between Japan and Germany, on the one hand, and third-world countries, on the other, after World War II illustrates the importance of labor quality. Although much of the physical capital in Germany and Japan was in ruins or depleted, their economies grew rapidly after the war, as the skill, experience, education, training, health, discipline, and motivation of the existing labor force remained intact.

Why is labor productivity higher in DCs such as Japan and Germany than in LDCs? In this chapter, we are not interested in productivity differences attributed to capital and land. Rather, we focus on the effect of variables, such as (1) formal education and training; (2) socialization, child rearing, motivation, and attitudes; and (3) the health and physical condition of the labor force, including a section on HIV infection and the AIDS epidemic.

Investment in Human Capital

Remember the discussion of human capital in Chapter 5. Theodore W. Schultz (1964) argues that

> Capital goods are always treated as produced means of production. But in general the concept of capital goods is restricted to material factors, thus excluding the skills and other capabilities of man that are augmented by investment in human capital. The acquired abilities of a people that are useful in their economic endeavor are obviously produced means of production and in this respect forms of capital, the supply of which can be augmented.

Economic Returns to Education

Education helps individuals fulfill and apply their abilities and talents. It increases productivity, improves health and nutrition, and reduces family size. Schooling presents specific knowledge, develops general reasoning skills, causes values to change, increases receptivity to new ideas, and changes attitudes toward work and society. But our major interest is its effect in reducing poverty and increasing income.

The World Bank economists George Psacharopoulos (1985:1325–1343; 1994: 1325–1343) and Maureen Woodhall (Psacharopoulos and Woodhall 1985:21–22, 196–197) indicate that the average return to education (and human capital) is higher than that to physical capital in LDCs but lower in DCs. Among human investments, they argue that primary education is the most effective for overcoming absolute poverty and reducing income inequality. This is especially true in sub-Saharan Africa, where less than three-fourths of the children of primary school age are enrolled in school.

Yet, in the 1960s, planners in developing countries favored secondary and higher education that met the high-level labor requirements of the modern sector rather than establishing literacy and general education as goals for the labor force as a whole. George Psacharopoulos, in a study in 1994 on the social rates of return to educational investment, indicates that the highest average returns are from primary education. A subsequent study (Psacharopoulos and Patrinos 2002) shows similar patterns, with returns to primary education 19 percent per year, secondary education 13 percent, and higher education 11 percent[1] (Table 10-1). The higher rates of returns to primary education are consistent with diminishing returns to increased dollars per pupil. Public expenditure per student is more for higher and secondary education than for primary education. Sub-Saharan Africa spends 100 times as much per pupil for higher education as for primary education! (See Table 10-2.) Africa's higher education costs result partly from an inability to achieve economies of scale. Thus, in the 1970s, in Ghana educating 20,000 students costs $3,500 per student, whereas in India,

[1] Private returns to investment in education are higher than social returns because of public subsidies to education and most studies' lack of information on positive social externalities (Psacharopoulos and Patrinos 2002:2).

TABLE 10-1. Average Social Returns to Investment in Education

Region	Primary education	Secondary education	Higher education
Asia*	16.2	11.1	11.0
Europe/Middle East/North Africa*	15.6	9.7	9.9
Latin America/Caribbean	17.4	12.9	12.3
Organization for Economic Cooperation and Development	8.5	9.4	8.5
Sub-Saharan Africa	25.4	18.4	11.3
World	18.9	13.1	10.8

Note: In all cases, the figures are "social" rates of return: The costs include foregone earnings (what the students could have earned had they not been in school) as well as both public and private outlays; the benefits are measured by income before tax. (The "private" returns to individuals exclude public costs and taxes, and are usually larger.)
* Non-OECD.

Source: Psacharopoulos and Patrinos 2002.

2,700,000 (with a network of local affiliated colleges to major universities in each state) costs only $250 per student.[2] By contrast, returns to primary education reach a point of diminishing returns, declining as literacy rates increase from LDCs to OECD countries (Table 10-1).

John B. Knight, Richard H. Sabot, and D. C. Hovey (1992:192–205; Knight and Sabot 1990:170–171) argue that studies by Psacharopoulos, often with a collaborator, are based on methodologically flawed estimates. Although average rates of return on primary education were higher than that to secondary education, the marginal rates of returns to the cohort entering into the labor market were lower for primary education than for secondary education. In the 1960s and 1970s, primary graduates were in scarce supply; a primary-school certificate was a passport to a white-collar job. In the 1990s, however, after decades of rapid educational expansion and the displacement of primary graduates by secondary graduates, primary completers are fortunate to get even the most menial blue-collar wage job. As education expands and as secondary completers displace primary completers in many occupations, successive cohorts of workers with primary-school certificates "filter down" into lesser jobs and lower rates of return. However, secondary graduates, who have acquired more occupation-specific human capital, resist the reduction of scarcity rents and the compression of the occupational wage structure with educational expansion. Thus, Knight, Sabot, and Hovey question whether LDCs should place a priority on investment in primary education.

[2] The returns to investment in primary education are especially high in countries such as Bangladesh, "where mass illiteracy prevails" (U.N. Economic and Social Commission for Asia and the Pacific 1992:38).

TABLE 10-2. Public Expenditures on Elementary and Higher Education per Student, 1976

Region	Higher (postsecondary) education	Elementary education	Ratio of higher to elementary education
Sub-Saharan Africa	3819	38	100.5
South Asia	117	13	9.0
East Asia	471	54	8.7
Middle East and North Africa	3106	181	17.2
Latin America and Caribbean	733	91	8.1
Industrialized countries	2278	1157	2.0
U.S.S.R and Eastern Europe	957	539	1.8

Note: Figures shown are averages (weighted by enrollment) of costs (in 1976 dollars) in the countries in each region for which data were available.

Source: World Bank 1980i:46.

How do educational differentials in lifetime earnings vary internationally (assuming a 10-percent annual interest rate on future earnings)? In the late 1960s, the ratio of higher educational to primary education earnings in Africa (8–10:1) was much higher than Latin American (4–5:1), Asian (3–6:1), and North American (3:1) ratios. Indeed in Africa, where university and even secondary graduates have been scarce, the premium to graduates of both levels of education (highly subsidized) is high, whereas the premium is low for both levels in North America (Hinchliffe 1975:152–156).[3]

Noneconomic Benefits of Education

As we have hinted at earlier, schooling is far more than the acquisition of skills for the production of goods and services. Education has both consumer-good and investment-good components. The ability to appreciate literature or to understand the place of one's society in the world and in history – although they may not help a worker produce steel or grow millet more effectively – are skills that enrich life, and they are important for their own sakes. People may be willing to pay for schooling of this kind even when its economic rate of return is zero or negative.

Some returns to education cannot be captured by increased individual earnings. Literacy and primary education benefit society as a whole. In this situation, in which the social returns to education exceed private returns, there is a strong argument for a public subsidy.

[3] Pritchett (2001) notes the high individual rates of returns in low-income countries amid low productivity and economic growth, resulting from widespread rent seeking and bribery, declining marginal returns to education from stagnant demand and low quality of education, the absence of externalities from entrepreneurship and social capital, and the large educational ethnic and gender gaps that contribute to low utilization of educated people (ibid.; Nandwa 2004:3).

Education as Screening

It may be inadequate to measure social rates of return to education through the wage, which does not reflect added productivity in imperfectly competitive labor markets. In LDCs, access to high-paying jobs is often limited through educational qualifications. Education may certify an individual's productive qualities to an employer without enhancing them. In some developing countries, especially in the public sector, the salaries of university and secondary graduates may be artificially inflated and bear little relation to relative productivity. Educational requirements serve primarily to ration access to these inflated salaries. Earnings differences associated with different educational levels would thus overstate the effect of education on productivity.

By contrast, using educational qualifications to screen job applicants is not entirely wasteful and certainly preferable to other methods of selection, such as class, caste, or family connections. Moreover, the wages of skilled labor relative to unskilled labor have steadily declined as the supply of educated labor has grown. Even the public sector is sensitive to supply changes: Relative salaries of teachers and civil servants are not so high in Asia, where educated workers are more abundant, as in Africa, where they are scarcer.

The World Bank, which surveys 17 studies in LDCs that measure increases in annual output based on four years of primary education versus no primary education, tries to eliminate the screening effect by measuring productivity directly rather than wages. All these studies were done in small-scale agriculture, where educational credentials are of little importance. The studies found that, other things being equal, the returns to investment in primary education were as high as those to investment in machines, equipment, and buildings. These studies conjectured that primary education helps people to work for long-term goals, to keep records, to estimate the returns of past activities and the risks of future ones, and to obtain and evaluate information about changing technology. All in all, these studies of farmer productivity demonstrate that investment in education pays off in some sectors even when educational qualifications are not used as screening devices.[4]

M. Boissière's, J. B. Knight's, and R. H. Sabot's (1985:1016–1030) study in Kenya and Tanzania, which separates skills learned in school from its screening effect, shows that earning ability increases substantially with greater literacy and numeracy (as measured by tests given by researchers), both in manual and nonmanual jobs. These skills enable mechanics, machinists, and forklift drivers, as well as accountants, clerks, and secretaries, to do a better job. But cognitive skills, especially literacy and numeracy, are not certified by schooling but discovered on the job by the employer, who is willing to pay for them by giving a wage premium over time. Earnings do

[4] See, however, Schultz (1975:827–846), who differentiates between static technology, in which there are no returns to education, and an agricultural economy experiencing dynamic changes in technology, in which education provides returns. Schumpeter's theory of the entrepreneur (Chapter 13) is one explanation of these dynamics.

The next three sections rely on World Bank (1980i:46–53); Bruton (1965:205–221); Boissiere, Knight, and Sabot (1985:1016–1030); and Nafziger (1988:133–135).

TABLE 10-3. Public Education Spending per Household (in dollars)

Income group[a]	Malaysia, 1974[b] Primary	Malaysia, 1974[b] Presecondary	Colombia, 1974[c] Primary	Colombia, 1974[c] University
Poorest 20 percent	135	4	48	1
Richest 20 percent	45	53	9	46

[a] Households ranked by income per person.
[b] Federal costs per household.
[c] Subsidies per household.
Source: World Bank 1980i:50.

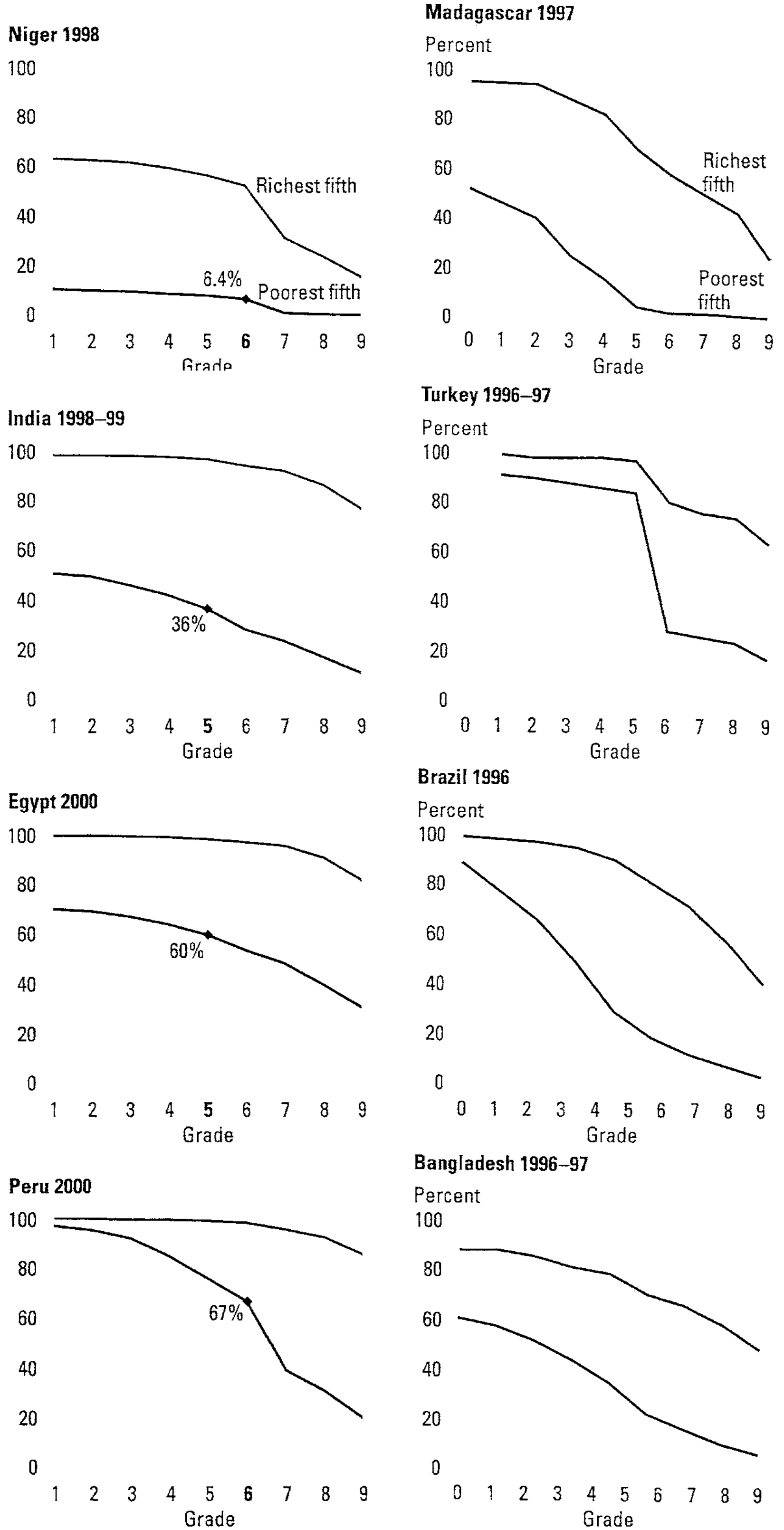
not, however, increase much with increased reasoning ability (measured by Raven's Progressive Matrices' pictorial pattern matching, for which literacy and numeracy provide no advantage) or increased years of school.

In both countries, learning school lessons, not just attending school and receiving certification, substantially affects performance and earnings in work. However, earning differences between primary and secondary graduates could reflect screening or alternatively unmeasured noncognitive skills acquired in secondary education. Research in countries at other levels of economic development is essential before we can generalize about the effects of screening and cognitive achievement.

Education and Equality

The student who attends school receives high rates of return to what his or her family spends. Yet poor families who might be willing to borrow for more education usually cannot. A simple alternative is for government to reduce the direct costs of education by making public schooling, especially basic primary education, available and free. Expanding primary education reduces income inequality and favorably affects equality of opportunity. As primary schooling expands, children in rural areas, the poorest urban children, and girls will all have more chance of going to school. In general, public expenditures on primary education redistribute income toward the poor, who have larger families and almost no access to private schooling (Clarke 1992; World Bank 1980i:46–53; World Bank 1993a:197). Public spending on secondary and higher education, by contrast, redistributes income to the rich, as poor children have little opportunity to benefit from it (Table 10-3).

The links among parental education, income, and ability to provide education of quality mean educational inequalities are likely to be transmitted from one generation to another. Public primary school, whereas disproportionately subsidizing the poor, still costs the poor to attend. Moreover, access to secondary and higher education is highly correlated with parental income and education. In Kenya and Tanzania, those from a high socioeconomic background are more likely to attend high-cost primary schools, with more public subsidy; better teachers, equipment, and laboratories; and higher school-leaving examination scores; which admit them to the


Niger 1998
Richest fifth
6.4%
Poorest fifth
Madagascar 1997
Percent
Richest fifth
Poorest fifth
Grade
India 1998–99
36%
Grade
Turkey 1996–97
Percent
Grade
Egypt 2000
60%
Grade
Brazil 1996
Percent
Grade
Peru 2000
67%
Grade
Bangladesh 1996–97
Percent
Grade

best secondary schools and the university. The national secondary schools, which receive more government aid and thus charge lower fees, take only 5 percent of primary school graduates. Additionally, the explicit private cost for secondary school graduates to attend the university (highly subsidized) is low, and the private benefit is high. Yet this cost (much opportunity cost) of secondary and higher education is still often a barrier to the poor. Moreover, those with affluent and educated parents can not only finance education more easily but also are more likely to have the personal qualities, good connections, and better knowledge of opportunities to receive higher salaries and nonmanual jobs. Not surprisingly, Tony Addison and Aminur Rahman (2003:94) find that the underlying cause of unequal educational and other public spending "is that economic power and associated wealth provide the affluent with a disproportionate influence over the political process, and therefore over expenditure allocation." The rural poor are less well organized and lack the resources to lobby. Climbing the educational ladder in LDCs depends on income as well as achievement.

In low-income countries in 2000–01, primary enrollment of girls as a percentage of girls age 6–11 years was 69 percent compared to the comparable ratio for boys of 79 percent; for middle-income countries, the corresponding figures were 93 to 93 percent. Sub-Saharan Africa's primary ratio was 56 percent compared to 64 percent for boys, and South Asia's 72 percent compared to 86 percent for boys (U.N. Development Program 2003:121). For secondary and university levels, the gender ratios are about the same or less (Nafziger 1997:276). Even if girls never enter the labor force, educating them may be one of the best investments a country can make in future economic welfare. Studies indicate clearly that educating girls substantially improves household nutrition and reduces fertility and child mortality (U.N. Economic and Social Commission for Asia and the Pacific 1992b:16–19). Yet, in most parts of the developing world, especially South Asia, the Middle East, and Africa, the educational bias in favor of male enrollment is pronounced (ibid., 1992). Parents view education for their daughters as less useful than for their sons. Frequently, they fear that education will harm a daughter's marriage prospects or domestic life. A girl's education may result in fewer economic benefits, especially if she faces job discrimination, marries early and stops working, or moves to her husband's village. However, educating her does increase the opportunity for paid employment, and families waste no time in educating their daughters when cultural change reduces the bias against woman in the labor market.

Educational options will widen as LDCs increase their investment in telecommunications. The electronic and video media offer extensive future opportunities for enhanced schooling, learning, and continuing education, as discussed later.

FIGURE 10-1. The Poor Are Less Likely to Start School, More Likely to Drop Out. Percentage of 15- to 19-year-olds who have completed each grade or higher. *Notes:* The bold grade number denotes the end of the primary cycle. Fifths based on asset index quintiles. *Source:* World Bank 2004i:21.

Education and Political Discontent

The World Bank (1996c) shows that, on average, low-income countries, especially sub-Saharan Africa, spend substantially more on education for households in the richest quintiles than those in the poorest ones. Although secondary and (especially) university education is highly subsidized, the private cost is still often a barrier to the poor. Providing free, universal primary education is the most effective policy for reducing the educational inequality that contributes to income inequality and political discontent. Near universal primary education in Kenya, Uganda, Ghana, Nigeria, and Zambia have dampened some discontent in these countries, whereas the low rates of primary school enrolment in Ethiopia, Mozambique, Angola, Sierra Leone, Rwanda, Burundi, Congo DRC, Somalia, and Sudan have perpetuated class, ethnic, and regional divisions and grievances in educational and employment opportunities.

Still, virtually universal basic education is not a panacea. In Sri Lanka, with continuing high enrollment rates in primary and secondary school, the majority Sinhalese perception of Tamil economic success as a threat to their own economic opportunities increased during the period of slow growth and high unemployment after independence in 1948. This perception contributed to governmental policies of educational, language, and employment discrimination against Tamils, beginning in the mid-1950s, which contributed to the Sri Lankan civil war of the last quarter of the 20th century. Thus, in Sri Lanka, educational policy favored the majority community.

Generally, however, expanding educational opportunities for low-income minority regions and communities can reduce social tension and political instability. Politically, the support for expansion in education, especially basic schooling, can come from educators, peasant and working-class constituents whose children lack access to education, and nationalists who recognize the importance of universal literacy for national unity and labor skills for modernization. Examples of these coalitions supporting universal basic education include Meiji Japan (Nafziger 1995) and Africa in the 1960s.[5]

Secondary and Higher Education

Although primary education in LDCs is important, secondary and higher education should not be abandoned. Despite the high numbers of educated unemployed in some developing countries, especially among humanities and social sciences (but not economics!) graduates,[6] there are some severe shortages of skilled people. Although

[5] Nafziger (1988:127–139), on "Maintaining Class: The Role of Education," discusses the political barriers to universal quality education.

[6] Psacharopoulos (1985:590–591, 603–604) indicates that the average returns to human capital investment for 14 DCs and LDCs are higher for economics than six other fields, which suggests that unemployment rates for economic graduates are also low.

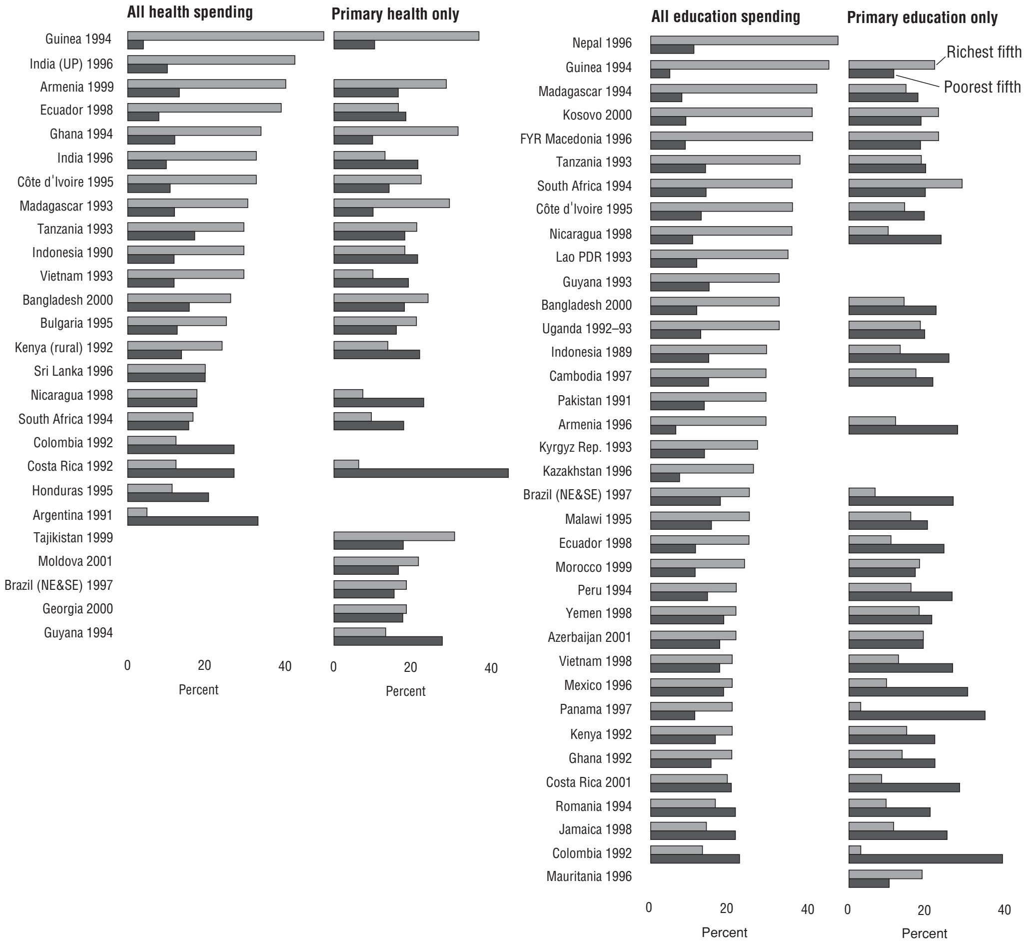


FIGURE 10-2. Richer People Often Benefit More from Public Spending on Health and Education. Share of public spending on health and education going to the richest and poorest fifths. *Note:* Figure reports most recent available data. *Source:* World Bank 2004i:39.

these shortages vary from country to country, quite often the shortages are in vocational, technical, and scientific areas.[7]

One possible approach to reduce the unit cost of training skilled people is to use more career in-service or on-the-job training. The following discussion suggests other ways.

In most countries, government subsidizes students beyond the primary level. Yet the families of these students are generally much better off than the national average (Figures 10-1 and 10-2). For example, in Tunisia, the proportion of children from

[7] The U.N. Economic and Social Commission for Asia and the Pacific (1992a:38–51) notes substantial shortages of people with scientific and technological education in China and South Asia. Farmers and informal-sector entrepreneurs and workers in rural areas especially benefit from simple technical training.

higher income groups is nine times larger in universities than in primary schools. These students should probably be charged tuition and other fees to cover the costs of their higher education, as its individual rewards are large. Charging these richer students allows government to spend more on poorer children, who can be granted scholarships. These policies may be difficult to implement. Parents of postprimary children are usually politically influential and will probably resist paying greater educational costs.

Education via Electronic Media

Distance learning through teleconferencing and computers can dramatically reduce the cost of continuing education and secondary and higher education, including teacher training. To be sure, as pointed out in Chapter 11, the digital divide excludes much of Asia, Latin America, and especially Africa from the benefits of computerization and the Internet. In 2000, the *Economist* estimated that only 3 million of some 360 million Internet users are in Africa.

Jamil Salmi, the author of a World Bank report on education, states that university or "tertiary education drives a country's future." His coauthored report urges policy makers to take advantage of the opportunities of university education, combined with new knowledge networks and technologies, in increasing productivity. The University of Dar-es-Salaam, Tanzania, expanded opportunities for higher education by relying more on distance learning, often cheaper than building additional universities (World Bank 2002a; *World Bank Development News*, "Developing Countries Need Quality Higher Education: World Bank Report." December 5, 2002).

Mauritania, a Saharan country with a population of three million, uses distance learning to stretch its educational dollars. Its only university, the University of Nouakchott, "is trying to deliver high-quality education from North America via teleconferencing and the Internet through a branch of the African Virtual University" (del Castillo 2002). In 2002, students acquired training via a one-way system via satellite, with local lecturers providing interaction with the students. Unlike in the West, the university is designed not to serve urban workers or rural people but to enhance instruction for traditional college students, where faculty and other highly-qualified people are scarce (ibid.).

The World Bank, in cooperation with local nongovernmental organizations and national governments, provides educational resources for LDCs, especially in Africa. The Bank and partners have provided an Africa Live Data Base, Connectivity for the Poor to develop local networks (Eduardo Mondlane University, Mozambique) with access to global knowledge sources, the Global Distance Learning Network with distance learning centers in LDCs to facilitate training for professionals worldwide, the African Virtual University (AVU) to offer degree programs in science, engineering, and continuing education via satellite, and World Links, a school-to-school connectivity program among 64 secondary schools in Africa, linked via the Internet with DC schools (World Bank Group in Africa 2000).

Distance learning, as well as correspondence courses for people in remote areas, can dramatically reduce the cost of some postprimary schooling. Where computerized and Internet-based courses are feasible, they can usually be provided at a fraction of the cost of traditional schools, saving expensive infrastructure and buildings, and allowing would-be students to earn income while continuing their education.

In many instances, LDCs can reduce the number of university specializations, relying instead on foreign universities for specialized training in fields in which few students and expensive equipment lead to excessive costs per person. However, care must be taken to prevent either a substantial brain drain from LDCs to DCs (more on this later) or a concentration of foreign-educated children among the rich and influential.

Planning for Specialized Education and Training

The following three skill categories require little or no specific training. The people having these skills move readily from one type of occupation to another.

1. The most obvious category comprises skills simple enough to be learned by short observation of someone performing the task. Swinging an ax, pulling weeds by hand, or carrying messages are such easily acquired skills that educational planners can ignore them.
2. Some skills require rather limited training (perhaps a year or less) that can best be provided on the job. These include learning to operate simple machines, drive trucks, and perform some construction jobs.
3. Another skill category requires little or no specialized training but considerable general training – at least secondary and possible university education. Many administrative and organizational jobs, especially in the civil service, require a good general educational background, as well as sound judgment and initiative. Developing these skills means more formal academic training than is required in the two previous categories.

We have already discussed how public expenditures are best allocated among primary, secondary, and postsecondary education to ensure these skill levels, but we add that *highly* specialized training and education are usually not essential in these skill categories.

It is very important how an LDC develops the more specialized skills it will need in its labor force. There is a wide range of skills especially relevant to LDCs that require specific training and among which there is very little substitution. Most professionals – medical doctors, engineers, accountants, teachers, lawyers, social workers, and geologists – are included in this category. Generally, a person with these skills has gone through 12–20 years of training, several of which have involved specialized training. The skill has been created at great cost, and the worker's productivity depends very much on the general pattern of the country's economic development.

Educational and personnel planning are most pressing when little substitution among skills is possible. For example, if a country has large oil deposits and its educational system produces only lawyers, sociologists, and poets but no geologists and petroleum engineers, establishing an oil industry will be difficult unless the country can import the needed technicians.

The fixed input–output planning method uses past information to derive a relationship between specialized human inputs and outputs. This approach first estimates the future level and composition of output. The assumed input–output relationship then enables the planner to estimate the demand for persons to fill the expected jobs. Given the length of training required for highly skilled jobs, the production of highly trained persons to fill them is nearly fixed in the short run. However, plans might be made for, say, 5 years, 10 years, and 20 years hence, with educational programs to meet the needs of specialized personnel. These programs would include training teachers by the time needed.

Yet the fixed input–output approach does not recognize some possibilities for substitution. First, if the supply of teachers is inadequate or too costly, planners might hire foreign teachers or send students abroad. Second, one category of high-level skills may substitute for another – nurses or paramedics for a medical doctor, technicians for an engineer, and elementary teachers trained in postprimary teachers' colleges for university graduates in education. Third, it is not necessarily true that the array of skills produced should adapt to the desired output composition. Perhaps the relationship can be reversed, especially in an economy open to international trade and specialization. For example, if a country has an abundance of potters and brass workers and a scarcity of chemical engineers, it may be less costly, especially in the short run, to export pottery and brass goods and import chemicals. Other alternatives would be to hire foreign chemical engineers or provide economic incentives to encourage foreign enterprises to produce chemicals domestically.[8]

Achieving Consistency in Planning Educated People

What can be done to reduce the shortages and surpluses of particular types of high-skilled people in LDCs? Various government departments (or ministries) must coordinate their activities (U.N. Economic and Social Commission for Asia and the Pacific 1992). For example, the Department of Education's planning may conflict with that of the economic planners. Educational policy may be to turn out historians, psychologists, and artists, whereas the development plan calls for engineers, accountants, and agronomists.

Chapter 9 mentioned some of the distortions that occur in the market for educated labor. The educated may have unrealistic earning expectations and job preferences, and wage rates may adjust slowly to changes in the supply and demand for skills. Chapter 9 suggested certain policies to handle this market distortion. These included slower growth in educational budgets, orientation toward scientific and technical

[8] This and the next two sections rely heavily on Bruton (1965:205–221).

learning, a reduction in subsidies for secondary and higher education to high- and middle-income students, a modification of job rationing by educational certification, and more flexible wages.

In most LDCs, the supply and demand for high-level personnel could be equalized if wages were adjusted to productivity. For example, in Kenya a primary school teacher is paid one-third as much as a secondary school teacher, and in Cyprus, the primary teacher earns 48 percent of a clerical officer's salary, whereas one in New Zealand makes 414 percent (Heller and Tait 1983:44–47). Another example is that existing wages in LDC agriculture departments frequently encourage the rare extension worker skilled in analyzing plant or animal diseases or in designing farm machinery to seek an urban desk job. A shift in wage structure will not only spur job shifts among the presently employed, but will also encourage changes in spending for education and training. But even if wages are more closely related to productivity, the long gestation period required for the production of some skills may cause difficulty. Yet the market might still work effectively if government keeps people informed about future trends in the supply and demand for skilled labor.

Vocational and Technical Skills

It is often inefficient to rely heavily on schools to develop vocational skills. Technical skills change rapidly, and vocational and technical schools often find it difficult to keep up. Frequently, these institutions should simply provide generalized training as a basis for subsequent on-the-job training or short courses. On-the-job training balances supply and demand. Firms train people for only those slots already in existence or virtually certain to come into existence. Training processes operating independently of specific job demands are less effective, and the instructors in such situations may have no idea of the needs of the firms where students will ultimately be placed.

Where on-the-job training is not possible, short-term training institutions for people already at work are often superior to vocational or technical schools. A firm's production may be substantially disrupted if an entrepreneur in a small firm or a key management person in a large firm leaves for long-term training. Thus, it is best perhaps to offer a short course oriented toward those skills that are lacking. The key person's productivity will improve, and production will not be appreciably impaired.

Another approach may be to use extension agents to teach specific knowledge and skills to an owner, manager, or technician in a firm or farm. The extension agent can visit the enterprise, provide one-on-one instruction at the extension center, or have the client consult with a technical or management expert. I have observed leather-working, woodworking, and shoemaking experts in Nigeria's industrial extension centers helping small-scale entrepreneurs, who had capital and management experience, master the mechanical skills and establish the production line essential for their firms to expand.

Should vocational training or extension programs be subsidized? We know that even in the case of small farmers or industrialists, the recipient of such assistance is

usually economically better off than average. Subsidies are questionable. However, there may be some economic rationale for subsidies to programs that provide direct entrepreneurial and technical assistance to small productive units. Thus, a small firm may not be able to pay a highly specialized person; however, if this person's scarce managerial and technical skills are used in 30 or 40 firms a year, the economic cost per firm is likely to be low. Furthermore, given the external economies and the difficulty of billing each firm for the service, there may be merit in not charging for it at all.

Reducing the Brain Drain

The market for persons with scientific, professional, and technical training is an international one. In 1962, U.S. immigration laws were liberalized to admit persons having certain skills. The result is that millions of individuals with professional, scientific, and engineering training migrated to the United States between 1962 and 2003. At the end of the 20th century, one-third of science and engineering Ph.D.-holders in the United States working in industry were born abroad. Among computer scientists in industry, the proportion was half; among engineers it was more than half; and, in mathematics, more than one-third. The foreign-born share of Ph.D.s in academia was less than in industry, but the same fields were affected. Among full-time faculty, foreign-born individuals with U.S. degrees comprise nearly 40 percent in computer sciences, 35 percent in engineering, and 28 percent in mathematics. In 1999, 16 percent of the Ph.D.s in the federal government were born overseas, and 19 percent of Ph.D.s in state and local government. Among baccalaureate recipients in the United States, 19 percent were born abroad, with field concentrations similar to those for Ph.D.s. [National Science Board Subcommittee on Science & Engineering Indicators (Richard Tapia, Chair) 2002]. The overwhelming majority of these people came from LDCs, especially Asian countries, such as South Korea, India, the Philippines, China, and Taiwan. Other Western countries may have attracted as many skilled immigrants as the United States. However, China's rapid growth since 1979 has made it a land of opportunity, reversing years of brain drain.

Africa, with widespread economic regress and political instability, also suffers from the loss of skilled emigrants. The World Bank (2000a) estimates that 30,000 African Ph.D.s live outside the continent; over 60 percent of immigrants from Africa to the West have university education; and the continent has lost one-third of its skilled professionals, mostly to DCs, in recent years.

Harvard's George J. Borjas indicates that U.S. immigrants, who have usually been educated abroad, do not receive their marginal products as wages, thus importing "free" human capital into the United States (Borjas 1994:1667–1717). Kar-yiu Wong and Chong Kee Yip (1999:699–726) argue that because the engine of economic growth is human capital accumulation and intergenerational externality, the brain drain has an adverse impact on present growth and income distribution, and the welfare of future generations, of nonmigrants.

According to Herbert B. Grubel and Anthony B. Scott's (1966:268–274) marginal product approach, the developing country does not lose from the emigration of

BOX 10-1.

Abdus Salam, who became famous among particle physicists in 1950, returned to Pakistan soon thereafter but was isolated, doing little more rewarding than manage the college soccer team. In 1954, he reluctantly returned to Britain. In the early 1960s, after his pathbreaking theories won him the Nobel, he persuaded the International Atomic Energy Agency to establish the International Center for Theoretical Physics (ICTP) in Trieste, Italy, where LDC physicists, rejuvenated by month-long conferences featuring lectures, workshops, and seminars by the world's leading physicists, are provided alternatives to emigration (Economist, "Physics for the Poor" 1989:99–100; and author's visit to ICTP, July 31–August 4, 1995).

Few other beneficiaries of the brain drain have been able to make the contribution Dr. Salam did to his home country and other LDCs.

highly-skilled people, or **brain drain**. In a competitive economy, a worker earns an income equivalent to his or her marginal product. Because the emigrant removes both contribution to national product and the income that gives a claim to this share, the income of those remaining behind is not reduced. In fact, the welfare of the people born in the country increases, as the emigrant increases his or her income, partly because the emigrant's new country has superior complementary factors, such as entrepreneurship, management, capital, and skilled people. Approaching matters from a different angle, the World Bank (*Development News*, April 3, 2003) says that the advantages of worker remittances to the LDC are greater than the loss from a brain drain.[9] Michel Beine, Frederic Docquier, and Hillel Rapoport's (2003) empirical study of 50 LDCs' emigrants to the United States finds that the brain drain only has a negative effect on economic growth where emigration of the highly educated is more than 20 percent and the proportion of people with higher education is in excess of 5 percent.

Another approach is that emigration is an "overflow" of high-level persons who would otherwise be underutilized and discontented in their home countries (Baldwin 1970:358–372). For example, it is argued that someone like the European-based Pakistani Nobel physicist Abdus Salam would not have had at home the research and library facilities and intellectual stimulation from colleagues needed for his specialized work in chromodynamics (see Box 10-1).

However there are several reasons to question these two analyses. Criticisms 1–3, following, are of the marginal product model, and Criticism 4 deals with the overflow approach.

1. The marginal product model assumes that individuals pay the full cost of their education. Yet, in most LDCs, the government subsidizes schooling. When educated persons emigrate, the country loses human capital, a cost borne by its taxpayers in the past.

[9] Other benefits of the brain drain may be a return home after having acquired productive skills and a boost in the incentive to acquire skills by home residents (Faini 2003, who, however, rejects these arguments).

2. Many LDC labor markets are not competitive but nearly **monopsonistic** (one buyer), with only one major employer, the government. In this situation, marginal product is in excess of the wage. Accordingly, the country loses more output than income from emigration.
3. High-level technical, professional, and managerial skills increase the productivity of other production factors, such as capital and unskilled labor. Thus, emigration of high-level personnel reduces the productivity of other factors, and increases the unemployment of unskilled labor (Chaudhuri 2001).
4. The overflow theory probably applies to only a fraction of the skilled people who emigrate. Furthermore, government could reduce overflow by encouraging students and trainees to take programs relevant to the home country, and DCs might provide refresher conferences, seminars, workshops, and training to the LDCs' highly skilled personnel to reduce their emigration to DCs (see Box 10-1).

All in all, there is reason for LDC concern about the brain drain. They might undertake several policies.

1. Scholarships and training grants can be awarded only within the country, except where needed programs are not available. Students studying abroad should receive scholarships funds only for programs of study relevant to the home country.
2. Many students sent abroad could go to another LDC, such as India, South Africa, or Costa Rica, which offers the needed specialization.
3. Even when the student is sent to a developed country for graduate study, joint degree programs between universities in DCs and LDCs, in which research is done locally under the supervision of a scholar living in the LDC, would improve the chance of that student's remaining at home.
4. The government can provide temporary salaries to its foreign-educated graduates in their job searches, guarantee employment in the home country, or financially assist recruiters seeking nationals abroad.
5. Eliminating discriminatory policies and barriers to free inquiry might encourage highly educated nationals abroad to return.

Some policies to reduce the brain drain may have negative effects. For example, the insights and creativity garnered from overseas study and travel may have to be sacrificed.

Socialization and Motivation

Socialization is the process whereby personality, attitudes, motivation, and behavior are acquired through child rearing and social interaction. In this process, the group imparts its expectations to the individual concerning food habits, religion, sexual attitudes, worldview, and work attitudes. Do cross-national differences in labor productivity and work commitment result from different socialization processes?

COMMITMENT TO WORK

During the colonial period, many Western government officials, managers, and economists argued that Afro-Asians were not motivated by economic incentives and lacked a commitment to work. Many of these Westerners opposed raising native wages on the grounds that the labor supply curve was backward bending at an early stage. The prevailing view was that Afro-Asians would work less if wages were increased because they had few wants and valued their leisure. If there were some validity to the **backward-bending labor supply curve** during the early part of this century, it was because of Western colonial policy. Traditionally, many peasants did not sell agricultural products; instead, they farmed for consumption by the family, clan, or village. However, when the colonial government required money taxes, the peasant had either to produce what the European traders would buy or work at least part-time for the colonial government or a foreign firm. Not surprisingly, many worked for money only long enough to pay the enforced tax. Accordingly, if wages per hour were raised, they worked fewer hours and disappeared to their villages sooner.

The supply curve for labor for most individuals, whether in LDCs or DCs, is backward bending at some point. Most people take part of their higher income in leisure. However, despite the backward bending *individual* curve, the *aggregate* supply curve of labor is upward sloping (that is, more hours of work are forthcoming at higher wages).[10]

ATTITUDES TOWARD MANUAL WORK

Gunnar Myrdal (1968, vol. 2:1020–1285), the Swedish economist who won the Nobel prize partly for his detailed inquiry into Asian poverty, argues that a major barrier to high labor productivity is a class system in which the elite are contemptuous of manual work. The implication is that upper- and middle-class Westerners, who are more likely to carry their own briefcases, mow their lawns, and repair their automobiles, have different attitudes.

Yet affluent Europeans and North Americans may do more manual work than affluent Asians simply because cheap labor is not readily available to them. In general, unskilled labor is more abundant in LDCs than in DCs. However, Northern Europeans have hired Turkish, Croatian, and Italian “guest workers” to do menial jobs; farmers in the southwestern United States Latinos to do “stoop” work; and American parents foreign nannies for child care. Furthermore, as the minimum wage for cooks, nannies, gardeners, and other servants increases in LDCs, as in Nigeria during the oil boom of the 1970s, elites in LDCs increasingly resort to manual work themselves. Thus, attitudes toward manual work may differ between DCs and LDCs, but these appear to be primarily related to the supply of cheap labor.

[10] Boeke (1953) presents a theory of sociocultural dualism, which features a clash between indigenous social systems in the East and imported Western social systems. He argues that Indonesia and other Eastern societies have limited wants, contributing to a backward-sloping labor supply curve. Evidence from Higgins (1968:227–241) undermines Boeke’s theory of Eastern “limited wants.”

CREATIVITY AND SELF–RELIANCE

Psychologists argue that differences in skills and motivations are created by the child's environment. Cultures vary widely in approaches to child rearing and training. We cannot reject out of hand the possibility that cross-national differences in labor productivity may be affected by attitudes and capabilities derived from different socialization processes.

Some childhood development scholars suggest that the environment in traditional societies, such as exist in most LDCs, produces an authoritarian personality. Children brought up in these societies view the world as consisting of arbitrary forces rather than one that can be rationally manipulated. They are less likely to be independent, self-reliant, creative, imaginative, and reliable than children from societies that encourage reasoning and initiative. These theories are discussed in more detail when we look at entrepreneurship and innovation (see Chapter 12).

Health and Physical Condition

The World Health Organization's *World Health Report* (2003:5) states that

> Global health is a study in contrasts. While a baby girl born in Japan today can expect to live for about 85 years, a girl born at the same moment in Sierra Leone has a life expectancy of 36 years. The Japanese child will receive vaccinations, adequate nutrition and good schooling. . . . Meanwhile, the girl in Sierra Leone has little chance of receiving immunizations and a high probability of being underweight throughout childhood.

Moreover, the Japanese will receive medications worth about $550 yearly (and more if needed), whereas the Sierra Leonean will receive medicines worth about $3 yearly. According to WHO, this tells much about the world's growing inequality in investment in health. To meet Millennium Development [health] Goals (Chapter 2) requires attention to health promotion, disease prevention, treatment for acute illness and chronic care, response to new threats from diseases and injuries, and other components of a primary health care system (ibid., pp. 5–6).

Health and economic development show a two-way relationship. Development generally improves the health system, whereas better health increases productivity, social cohesion, and economic welfare.[11] Life expectancy is probably the best single indicator of national health levels. As indicated in Chapter 8, life expectancy in LDCs increased steadily between the 1930s and 2003, except for retrogression in Africa, largely because of HIV/AIDS, from 1994 to 2003. These increases were more the result of general improvements in living conditions than in medical care. Nevertheless, medical progress has been considerable, especially in controlling communicable diseases. By 1975, plague and smallpox were virtually eliminated.

[11] Bloom, Canning, and Sevilla (2004:11), using a production function model of growth, find that "a one-year improvement in a population's life expectancy contributes to an increase of 4% in output." The finding is positive and statistically significant even when the authors control for worker experience.

Malaria and cholera kill fewer people today than they did in 1950. Following a worldwide vaccination campaign, polio cases fell from 350,000 in 1988 to 700 in 2003, with 99 percent of polio cases in a minority of provinces of India, Nigeria, and Pakistan.[12]

Poor nutrition and bad health contribute not only to physical suffering and mental anguish but also to low labor productivity. A mother malnourished during pregnancy and inadequate food during infancy and early childhood may lead to disease as well as deficiencies in a child's physical and mental development. Future productivity is thereby impaired. Furthermore, malnutrition and disease among adults saps their energy, initiative, creativity, and learning ability and reduces their work capacity.

Malnourishment is mostly a problem among the poor. Millions of people in LDCs suffer from malnutrition, not because they do not know what to eat or because the right kind of food is not available, but because they cannot afford it. Some one billion of the world's people are trapped in a vicious circle of poverty, malnutrition, and low productivity.

Nutrition economists think that the *proportion* of people in LDCs suffering from malnutrition has fallen since 1960, although Africa and Latin America experienced setbacks in the 1980s (Chapter 7). It is clear, however, that with improved transport and communication and greater awareness of the need for emergency food aid, fewer people starve to death as a result of severe food crises and famines today than in 1960. Yet countries with any lengthy disruption in planting, harvesting, and food distribution – as often happens with internal political conflict, such as in Sudan, Somalia, Angola, Rwanda, and Bosnia in the 1990s – remain vulnerable to starvation.

Obviously, good health and nutrition are intertwined with a country's economic and social development. Although people are healthier and nutrition has probably not declined in LDCs since the 1960s, progress has been slow – with the result that labor productivity has grown slowly. And overall the physical and mental well-being among the poorest segments of LDC population has improved but modestly. Fifteen percent of the LDC population lives at least one hour's walk or travel away from health services and drugs. In Abidjan, Côte d'Ivoire, the probability of dying between 1 and 4 years of age is 15 times greater in slum areas than in affluent areas where housing and health standards are comparable to DCs (Morawetz 1977:44–50; Reutlinger 1977:715–24; Reutlinger and Selowsky 1976:8–9; Dwyer and Mayer 1975:74–78; Mahler 1980:66–77; Hendry 1988:8; Schnitzer 2000:228).

[12] In 1962, just 12 months after Albert Sabin licensed the oral polio vaccine, Cuba undertook a nationwide polio campaign, shortly after eliminating the transmission of the polio virus (WHO 2003:59). Yet, in early 2004, despite assurances from President Olusegun Obasanjo of Nigeria, a cleric and a doctor from Kano state in the north, accusing aid agencies of adulterating the vaccine, led resistance to polio inoculation. This concerned WHO, as seven countries in Africa were reinfected, forcing new immunization campaigns. Moreover, WHO warned that if polio was not eradicated in 2004, it might spread as children in many countries are no longer immunized (*World Bank Development News* 2004, "Immunization Drive Could Wipe Out Polio by End of 2004," January 16; and "Polio Spreading in West Africa," January 24).

TABLE 10-4. DALYs (Disability-Adjusted Life Years) Lost per 1,000 Population, 2002

Developed Asia and the Pacific	105
Western Europe	125
North America	140
Latin America	190
East and Central Europe	212
Developing Asia and the Pacific	214
Middle East[a]	277
Sub-Saharan Africa	542

[a] Includes North Africa, Afghanistan, and Pakistan.
Source: WHO 2003:160–161.

Mortality and Disability

Of the 57 million people who died worldwide in 2002, 17 million deaths were a result of cardiovascular disease (stroke and heart disease) and 7 million from cancer, disproportionately from DCs. Deaths from other diseases, disproportionately from LDCs, include 3.8 million from respiratory infections, 2.8 million from HIV/AIDS, 2.4 million from conditions at birth, 1.8 million from diarrhoeal diseases, 1.6 million from tuberculosis, 1.3 million from measles, 1.2 million from malaria, and 0.4 million from protein-energy malnutrition and iodine, Vitamin A, or iron deficiency (WHO 2003:154–157).

About 18 percent of the world's deaths (10.5 million) are among children younger than five years old. More than 98 percent of these child deaths were in LDCs. Whereas worldwide child mortality rates fell from 1990 to 2002, Africa's child death rate in 14 countries increased. Nineteen of the 20 countries with the highest child mortality were in Africa, with the exception being Afghanistan. These child deaths resulted primarily from infectious and parasitic diseases (including HIV/AIDS), conditions at birth, diarrhoeal diseases, and malaria, with malnutrition contributing to virtually all. Girls have a lower child mortality than boys, except in China, India, Pakistan, and Nepal with preferential health care and nutrition for boys. Children from poor households (the bottom income quintile) have a higher risk from dying than those from nonpoor households, with the largest discrepancy in African countries, such as Niger, where the poor child has a 34 percent chance of dying compared to a 21 percent chance for the nonpoor child (ibid., pp. 8–9).

You can measure disease burden by calculating **disability-adjusted life years (DALYs)**, combining years lost through premature death and from living with disability. A DALY is one year lost of a healthy life. Table 10-4 shows that DALYs lost per 1,000 population between the ages of 15 and 60 years is 542 for sub-Saharan Africa (whose health had deteriorated since 1990), 214 for Asia and the Pacific (excluding developed Asia), 132 in the West (combining Western Europe and North America),

and 207 for the world as a whole (a drop from 354 in 1955) (last two figures from WHO 2003:15).

AIDS

Since 1981, when the HIV/AIDS (human immunodeficiency virus/acquired immunodeficiency syndrome) epidemic was first identified, 20 million people have died of AIDS, and most of the 40 million people living with HIV in 2002 were likely to die ten or more years prematurely.[13] In 2001, 70 percent (28 million) of the 40 million people in the world with HIV/AIDS lived in sub-Saharan Africa. Seven million lived in Asia, two million in Latin America and the Caribbean, one million in Eastern Europe/Central Asia, and two million elsewhere (Lampley, Wigley, Carr, and Collymore 2002:3, 9–10).[14] According to the World Bank (2004f:xxviii), UNAIDS, the global fund to fight AIDS, tuberculosis, and malaria, has been "cash-strapped," with inadequate DC pledges, 2005–07.[15]

The AIDS prevalence among adults, aged 15 to 49 years, in the sub-Sahara, was 9 percent (Lampley et al. 2002:3, 9–10). "HIV-positive teachers are estimated at more than 30 percent in parts of Malawi and Uganda, 20 percent in Zambia, and 12 percent in South Africa" (World Bank 2004f:23). AIDS infection rates in Africa are highest among urban high-income, skilled men and their partners (Ainsworth and Over 1994:203–240). Women comprised 58 percent of HIV-positive adults in the sub-Sahara, primarily because they are highly dependent on partners for economic security, and are often powerless to negotiate relationships based on abstinence or condom use. Furthermore, some are coerced into unprotected sex or run the risk of infection by a husband in a society where multiple partners for men are accepted (UNAIDS 2004).

In half the sub-Saharan countries, annual per-capita income growth has declined by 0.5–1.2 percent because of AIDS. The growth slowdown from AIDS results from health care costs, reduced savings, the loss of skilled adults in their prime working years, the reduced productivity of those who work, the cost of caring for orphans, and other costs. All sectors of the economy are affected. The epidemic damages the health system with increasing demands amid a falling number of trained medical providers. Additionally, death from AIDs of an adult affects the next generation, as children withdraw from school to help at home (Lampley et al. 2002:19–22).

More than 20 percent of adults in South Africa, Botswana, Zambia, Zimbabwe, Namibia, Lesotho, and Swaziland (in southern Africa) were HIV-positive in 2001

[13] HIV kills by weakening the body's immune system so it can no longer fight infection (Lampley, Wigley, Carr, and Collymore 2002:4).

[14] In the third world, AIDS is primarily a disease of heterosexual adults, with substantial infection of young children at the time of their birth or from being breastfed. An HIV-infected adult develops AIDS on average in 6 to 10 years (World Bank 1993i:33–34).

[15] The World Health Organization estimates that only 10 percent of the annual $50–60 billion in health research worldwide goes for these three diseases that afflict 90 percent of the world's population, largely in LDCs (World Bank 2001i:183).

(Lampley et al. 2002:10). Botswana, a democracy with a population of 1.6 million, had the highest rate of GDP per capita growth, 1965–2000. The country, with able presidential leadership, strengthened private property rights, in the interests of economic elites, especially those in the diamond industry (Acemoglu, Johnson, and Robinson 2002). However, the economic success of Botswana is being destroyed by the high incidence of HIV/AIDS, 39 percent among adults aged 15 to 49. In 2002, Botswana's deaths per 1,000 children under age 5 with AIDS was 107 compared to 31 without AIDS (Lampley et al. 2002:16). In 2010, life expectancy is expected to be 27 years, compared to 74 without AIDS (Chapter 8). The rapid development of an extensive and well-maintained road network, with truckers, miners, construction workers, teachers, and nurses fanning across the country, together with the ignorance about the disease, taboo about acknowledging it, and discrimination against carriers, kindled the epidemic. Work time lost from absences, sicknesses, and deaths in the workforce has devastated the country (ibid., p. 3; Thurow 2002).

AIDS has perhaps caused more suffering and damage to the social fabric in already heavily burdened countries than any pathogen since the bubonic plague of the 14th century. But the devastation of AIDS varies worldwide. Most people living with AIDS in DCs who benefit from chemotherapy and antiretroviral drugs can resume normal life. In the poorest LDCs, with weakened health systems and lack of access to generic antiretroviral drugs, HIV, however, is still a death sentence. In Africa, only 1 percent of those adults with HIV/AIDS have access to lifesaving antiretroviral therapy (WHO 2003:43–46).

To be sure, UNAIDS, U.S. aid (mostly separate from the United Nations in 2004), private initiatives (for example, the Bill and Melinda Gates Foundation and the Bill Clinton Foundations), and the waiving of patent rights to expensive drugs by some Western companies may reduce the cost of AIDS treatment in poor countries. However, even if DCs and their companies permit these countries to buy cheaper generic drugs, the lack of an effective health delivery system in many may prevent widespread effective therapy. The cost and complexity of AZT (Azidothymidine) and other therapies limit their uses in poor countries (Lampley et al. 2002:23).

Whereas prevention is the highest priority, improving HIV treatment reduces the stigma and increases the incentive for people to seek counseling and testing. Preventive measures, such as education on safer sex, promotion of condom use, prevention and treatment of sexually transmitted diseases, and reduction of blood-borne transmission, are cost-effective, especially if targeted at people at particularly high risk of acquiring and transmitting HIV infection, such as sex workers, migrants, the military, truck drivers, and drug users who share needles (ibid., p. 27; World Bank 1993i:20, 100–105).[16]

[16] Dyson (2003:427–442) finds that, in sub-Saharan Africa, both the prevalence of HIV infections and the economies of concentration in combating infection are greater in urban areas. Gersovitz and Hammer (2004:1–27), assuming a ready-made dynamic model of disease transmission from epidemiology, examine optimal implementation of prevention and therapy of infectious diseases.

LDCs need integrated AIDS prevention and care, including correct and culturally appropriate information and existing prevention tools. Brazil has mandated universal and free access to HIV care, including testing, counseling, and distribution of generic, antiretroviral drugs, which stopped the epidemic from spreading further. Uganda reduced prevalence by an "ABC campaign" of abstinence, being faithful, and condom use, and empowering women to negotiate safer sexual patterns (WHO 2003:47–50).

Other world regions are not exempt. The *World Bank Development News* ("The Plague We Can't Escape," March 17, 2003) reports the concern by the U.S. government that, left unchecked, a second wave of HIV/AIDS will devastate the nations of Russia, China, India, Nigeria, and Ethiopia, so that by 2010, their combined numbers will dwarf those of the rest of sub-Saharan Africa. The governments of Nigeria and Ethiopia doubt that their health systems can cope with the epidemic without substantial debt writedowns or foreign aid. Failure to check AIDS growth could mean the collapse of social and political institutions in the five countries.[17]

Conclusion

1. Since the 19th century, the wage premium for skilled relative to unskilled labor has increased.
2. Despite destruction of physical capital during World War II, the economies of Germany and Japan grew rapidly in the postwar period because their labor forces – with high degrees of skill, experience, education, health, and discipline – remained intact.
3. Investment in human capital includes expenditures on education, training, research, and health, enhancing a people's future productivity.
4. Economists who analyze the relative rates of returns to investment to primary education and secondary education in LDCs disagree on whether LDCs should put greater priority on primary education. Psacharopoulos and Woodhall, who find that the higher average returns are from primary education, argue for more emphasis on primary education. Knight, Sabot, and Hovey, however, question this emphasis in a study that shows that the marginal rates of returns to the cohort entering into the labor market were lower for primary education.
5. Although employers sometimes use secondary and university education as a screening device, they discover and pay wage premiums for literacy and numeracy, even in manual work.
6. Public expenditure per student for higher education in LDCs is about 10 times as high as for primary education.
7. In LDCs the expansion of primary education redistributes benefits from the rich to the poor, whereas the growth of secondary and higher education redistributes

[17] New diseases can spread quickly in an interdependent world with a highly mobile population. In 2003, after early fear that SARS (severe acute respiratory syndrome) would spin out of control, the World Health Organization (2003) helped coordinate an effort for prompt detection and reporting, timely global alerts, travel recommendations and screening measures at airports, and collaboration by scientists and clinicians that may have provided lessons for dealing with future pandemics.

income from the poor to the rich. In light of this pattern, LDCs may want to charge their richer citizens for the full cost of secondary and higher education.

8. In most LDCs, boys are sent to school far more often than girls. Yet a number of studies indicate that educating girls has a high payoff in improving nutrition, reducing fertility and child mortality, and increasing labor force productivity.
9. One planning method for producing specialized skills is to use input–output relationships to determine future demand for various types of high-level personnel. However, assuming a fixed input–output relationship does not recognize the possibility of substituting one skill for another or adapting output to skills array.
10. If wages are adjusted more closely to productivity, LDC educational planning is easier.
11. On-the-job training tends to balance demand for, and supply of, training. In addition extension agents and training at short-term vocational or technical institutions can help people improve their skills without appreciably disrupting production.
12. Distance learning through electronic media can dramatically reduce the cost of continuing education and secondary and higher education, including teacher training.
13. Some economists argue that LDCs do not lose from the brain drain, as the worker earns an income equal to his or her marginal product. However, we can question this analysis, because marginal product may exceed the wage, high-level skills increase the productivity of other production factors, and government highly subsidizes education in developing countries.
14. There is no evidence of a backward bending supply curve for labor unique to LDCs. Furthermore, the aggregate supply curve of labor in LDCs is clearly upward-sloping.
15. Although affluent Asians may be more likely to consider manual work degrading than affluent Westerners, these attitudes appear to be primarily related to the more abundant supply of cheap labor in Asia.
16. Poor nutrition and health reduce labor productivity. However, health has improved, and nutrition has probably not deteriorated in LDCs since the 1960s.
17. HIV infection and AIDS-related deaths have had a substantial adverse impact on economic growth in some developing countries, especially in Africa.

TERMS TO REVIEW

- backward-bending labor supply curve
- brain drain
- disability-adjusted life years (DALYs)
- education as screening
- monopsonistic
- socialization

QUESTIONS TO DISCUSS

1. What impact has the increased premium on skilled labor had on attitudes toward and the relative wage for physical work in DCs?

2. Would you expect the returns to a dollar of investment in education to vary from those in industrial plant, machinery, and equipment? Would noneconomic educational benefits affect the decision under perfect competition to equalize the expected marginal rate of return per dollar in each investment?
3. Does empirical evidence on the rates of return to education show that LDCs should put a priority on primary education relative to secondary and university education? Would you expect the relative returns to primary education, on the one hand, and secondary and postsecondary education, on the other hand, to change as economic development takes place?
4. To what extent is education a screening device for jobs rather than a way of increasing productivity in LDCs? How might the importance of screening and enhancing productivity vary by educational and skill level, sector, or world region in the developing world?
5. How does LDC government investment in educational expansion affect income distribution?
6. What are some of the ways that an LDC can increase its rate of returns to investment in secondary and higher education?
7. What advice would you give to the top official in the Department of Education in an LDC who is designing a long-run program of education, training, and extension in his country? (You may either focus on LDCs in general, a particular LDC world region, or a particular LDC.)
8. How might government wage policies contribute to unemployment and underutilization of labor among the educated?
9. How can LDCs reduce the brain drain?
10. How do you explain cross-national differences in labor productivity?
11. Why does Africa have such a high incidence of HIV/AIDS?
12. What investments can an LDC government make to increase the health and reduce the incidence of disease in the LDC? Examine these investments in the light of the opportunity cost for other investments, including those in social capital.

GUIDE TO READINGS

The World Bank (2004i) examines the relationship between health and educational services, on the one hand, and economic development, on the other (http://econ.worldbank.org/wdr/wdr2004/text-30023/).

For health and education data, see World Bank (2003c) and U.N. Development Program (2003).

See World Health Organization's *World Health Report* (2003) on health and mortality, including AIDS, and Lampley, Wigley, Carr, and Collymore (2002) and UNAIDS (2004) on the HIV/AIDS pandemic. Arrow (2004:20–21) examines the challenge of stopping or slowing the spread of drug-resistant strains of malaria. Deaton (2003a:113–158) finds that poverty but not inequality reduces life expectancy.

Kremer (2002:67–90) analyzes small pharmaceutical markets in LDCs and their implication for market failure in providing drugs for widespread LDC diseases such

as malaria, diarrhoeal diseases, and hookworm. Because pharmaceutical R&D is a global public good, each country has an incentive to free ride on research financed by other countries.

Schultz (1963), Schultz (1961:1–17), and Becker (1975) are major works on investment in human capital. Behrman and Rosenzweig (1994) assess LDC data on education and the labor force. Boissière, Knight, and Sabot (1985:1016–1030); Knight and Sabot (1990); Knight, Sabot, and Hovey (1992:192–205); Psacharopoulos and Woodhall (1985); and Psacharopoulos (1985, 1994) analyze returns to education. Harmon, Oosterbeek, and Walker (2003:147–200) survey studies of the microeconomic returns to education, showing that investment in education has an unambiguously positive effect on individual earnings. How large the aggregate effect is depends on whether you use neoclassical or new growth theories. Glewwe (2002:436–482) analyzes how educational policies affect educational outcomes and skills in LDCs. Shultz (1988) analyzes economic returns to education. Strauss and Thomas (1995) discuss human resources: modeling of household decisions. Jiminez (1995) looks at human and physical infrastructure investment decisions.

Dasgupta (1993) focuses on the relationship among nutrition, energy requirements, and worker productivity, with the implications of malnutrition for incentives, institutional reform, and income redistribution. He uses the findings of nutritionists on the link between food needs and work capacity to reconstruct modern resource allocation theory. Mahler (1980:66–77); Berg (1987); Scrimshaw and Taylor (1980:78–88) analyze nutrition, health, and economic development. Weisbrod and Helminiak (1977:505–522) measure the impact of parasitic diseases on labor productivity.

See World Bank Group in Africa (2000) on electronic media in LDC education.

Nair (1969:453–456) presents a skillful argument against Myrdal's discussion (1968:Vol. 2) of Asian attitudes toward manual work.

The effect of childhood environment on the creativity and self-reliance of the labor force is discussed by McClelland (1961) and Hagen (1962). See also Chapter 12.

11 Capital Formation, Investment Choice, Information Technology, and Technical Progress

The Soviet Union's total product grew by 5.1 percent yearly from 1928 to 1940 (Gregory and Stuart 1986:119), mainly from increased inputs of labor (primarily educated labor) and capital. As indicated in Chapter 3, during later development, 1971 to 1985, **total factor productivity (TFP)** or output per combined factor input fell by almost 1 percent yearly. The fact that President Mikhail Gorbachev could not turn productivity growth around contributed to Soviet collapse in 1991. In 1994, Princeton economist Paul Krugman (1994a:69–72) contended that East Asia's "miracle growth" was, like the Soviet Union, based only on the growth of inputs. Thus, because of physical limits on continuing input growth, Singapore and Korea were "paper tigers." Their subsequent growth (save for the Asian financial crisis of 1997–98) indicated that Krugman was wrong, suggesting that previous East Asian productivity growth had been understated.

Krugman states (1999): "Productivity isn't everything, but in the long run it is almost everything. . . . A country's ability to improve its standard of living over time depends on its ability to raise its output per worker." History bears him out. The rapid growth in productivity of Japan and a few Western countries since the mid-19th century has not been equaled by other countries. Since then, the United States, Canada, Japan, and most Western European countries experienced real growth rates in gross national product per capita in excess of 1 percent per year, a rate that means a rise to more than four times initial value by 2000 (Chapter 3). The most important sources of this growth were capital formation and increased knowledge and technology.

Now, such continuous rapid growth may be more difficult. Given limited mineral resources, improved technology and increased capital accumulation will be essential for expanding (and perhaps just maintaining) real planetary product per capita in the future. Technical advances, such as better mining techniques (especially for using ocean resources), may mitigate our limited mineral supplies; and microminiaturization with integrated circuits (for substantial reductions in materials required), and the development of renewable power sources based on the sun, either directly through solar cells, or indirectly through water power, wind power, and photosynthesis, will help us use our resources more wisely.

Scope of the Chapter

We analyze the relationships among capital, technology, and economic development. Nafziger's supplement (2006b) discusses ways to increase the rate of capital formation, including free market inducement for household and business savings, capital imports (see also Chapter 15), exploiting idle resources (often overrated), increasing **absorptive capacity** (the ability to profitably utilize additional capital), moral suasion (development as if sacrificing for war), improving the tax system, emphasizing direct taxes, taxes on luxuries, developing financial intermediaries, increasing investment opportunities, redistributing income, local financing of social investment, and inflationary financing. The first part of this chapter summarizes studies that review how capital formation and technical progress contribute to economic growth and indicates why the contribution of the two differs in DCs and LDCs. Second, we identify the composition of the growth in total factor productivity, usually labeled **technical progress** – the residual factor in growth, the increased worker productivity arising from factors other than increases in capital per worker-hour. Third, we consider technical change as a prolonged process of learning by doing. The fourth section asks whether growth can be attributed only to increases in measured inputs. Fifth, we define research, development, and invention, and their relationship to technical change. Sixth, we examine the impact of information and communications technology (ICT) on economic growth, and how promising ICT is for LDCs.

The seventh section looks at the investment criterion, maximum labor absorption, and some of its inadequacies. Next, we discuss social benefit–cost analysis, the planner's most comprehensive gauge for investment choice. We raise questions about the appropriate discount rate and how to treat risk and uncertainty. Subsequently, we indicate how private profitability must be adjusted for externalities, income distribution, indivisibilities, monopoly, savings effects, and factor price distortions to obtain social profitability. Our final section analyzes and assesses shadow prices, a way of adjusting prices more closely to social costs and benefits.

Capital Formation and Technical Progress as Sources of Growth

In the 1950s, U.N. economists considered capital shortage the major limitation to LDC economic growth. By capital, they meant tools, machinery, plant, equipment, inventory stocks, and so on, but not human capital.

On the basis of 19th- and 20th-century Western growth, however, the British economic historian Sir Alex Cairncross, writing in 1955, questioned whether capital's role was central to economic growth. To be sure, he agreed with U.N. economists that capital and income grow at about the same rate. But he felt that capital increases do not explain economic growth – that, in fact, the reverse was true: The amount of capital responds to increases in its demand, which depends on economic growth (Cairncross 1955:235–248).

Since 1955, econometricians have tried to resolve this controversy with studies measuring how factor growth affects output growth. The studies' primary concern has been to determine the relative importance of the two major sources of economic growth – capital formation and technical progress.

Initial attempts at statistical measurement in the West and Japan in the late 1950s and 1960s indicated that capital per worker-hour explained 5–33 percent of growth in output per worker-hour. Scholars usually attributed the residual, 67–95 percent, to technical progress (Abramovitz 1956:5–23; Solow 1957:312–320; and Bruton 1967:1099–1116). A development economist used this evidence to argue that capital formation has been stressed too much and technical progress too little (Hagen 1980:201–203).

Studies of LDCs, which gain substantially from imitation or modification of DC technology, contradict findings based on DC data. These studies indicate that the contribution of capital per worker to growth, even among fast-growing East Asian NICs, is 50–90 percent, whereas that of the residual is only 10–50 percent (Maddison 1970; Robinson 1971:391–408; Young 1995:641–680; see also Jorgenson 1995; Chenery, Robinson, and Syrquin 1986).[1]

For command economies Russia–Soviet Union, pre-1989 Eastern Europe, and pre-1976 China, the residual is even smaller than for the third-world countries of Asia, Africa, and Latin America. Virtually all growth in these command economies was attributed to increases in capital and other inputs, and only a tiny fraction to technical innovation, a combination that contributed to the Soviet collapse in 1991 (see Chapter 19).

The aggregate models used in studies of the sources of economic growth in developed and developing countries are rough tools. Yet these studies point in the same general direction. First, the major source of growth per worker in developing countries is capital per worker; increased productivity of each unit of capital per worker is of less significance. Second, the major source of growth per worker in developed countries is increased productivity, with increases in capital per worker being relatively unimportant. Accordingly, capital accumulation appears to have been more important and technical progress less important as a source of growth in developing countries than in developed countries.

In 1965, the Nobel prize winner John R. Hicks argued that econometric studies of growth sources in Western countries understate capital formation's contribution to growth. Because many significant advances in knowledge are embodied in new capital, its separation from technical progress may lead to underestimating its contribution. Furthermore, accumulation of new capital is frequently offset by a decrease

[1] However, Devarajan, Easterly, and Pack (2003:547–572) find that Africa's slow growth, 1960–94, does not result from low investment rates. Indeed, output per worker fell, whereas capital per worker increased, indicating a reduction in TFP. The major culprits in this reduction may be decreasing capacity utilization (bottlenecks from factories experiencing shortage of imported inputs and the fact that many factories operate with one shift) and the reallocation of labor to lower productivity sectors in manufacturing.

in value in old capital, partly from obsolescence. Thus, Hicks contended, it is very wrong to give the impression to a LDC, having relatively small amounts of old capital, that capital accumulation is a matter of minor importance.[2] Econometric studies of LDCs done since 1965 seem to confirm Hicks's point. The rates of capital growth in developing countries (as well as Israel, which received substantial inflows of funds in the 1950s) were rapid enough to offset some of the understatement of capital in the production function. Developing countries concerned about rapid economic growth ignore capital accumulation at their peril.

Indeed, the World Bank's (2004f:44) decomposition of GDP growth indicates that in LDCs, capital contributed more than productivity to GDP growth, 1990–2000. However, largely as a result of productivity growth from greater trade, productivity is expected to contribute more to GDP growth in LDCs than will capital, 2005–15 (Figure 11-1). Growth and productivity increases in East Asia and the Pacific are expected to remain strong through 2015. Keller (2004:752–782) indicates the effect of international R&D spillovers, foreign direct investment (especially by multinational corporations), and learning through exports and imports on productivity growth (see Chapter 17 on how increased globalization and international trade contribute to increased productivity growth).

Components of the Residual

Studies of Western growth find that the residual is a major contributor to economic growth. However, to label this **residual** technical knowledge without explaining it is to neglect a major cause of economic growth. Critics in the early 1960s objected to elevating a statistical residual to the engine of growth, thus converting ignorance into knowledge (Balogh and Streeten 1963:99–107). Accordingly, in recent years some economists have labeled this residual total factor productivity (TFP) rather than technical progress.

What does this residual include? Edward F. Denison (1967) studied the contribution that 23 separate sources made to growth rates in 9 Western countries for the period from 1950 to 1962. His estimates, particularly of labor quality, are based on reasonable and clearly stated judgments rather than on econometric exercises. Thus, he *assumes* that three-fifths of the earnings differentials among workers of the same age, geographical area, and family economic background are the result of education. Moreover, individuals in the labor force having the same years of school and hours in school per year obtained at the same age are considered to have an equivalent education, no matter when or where they received their education. Furthermore, 70 percent of the decrease in average hours worked is assumed to be offset by productivity increases. The reader aware of Denison's assumptions and approximations can benefit from his work; he is careful in handling empirical data, stating assumptions, and in investigating how results may be sensitive to variations in assumptions.

[2] In contrast, Denison (1988:39) would remove all contributions of advances in knowledge from capital accumulation and attribute these improvements to technical progress.

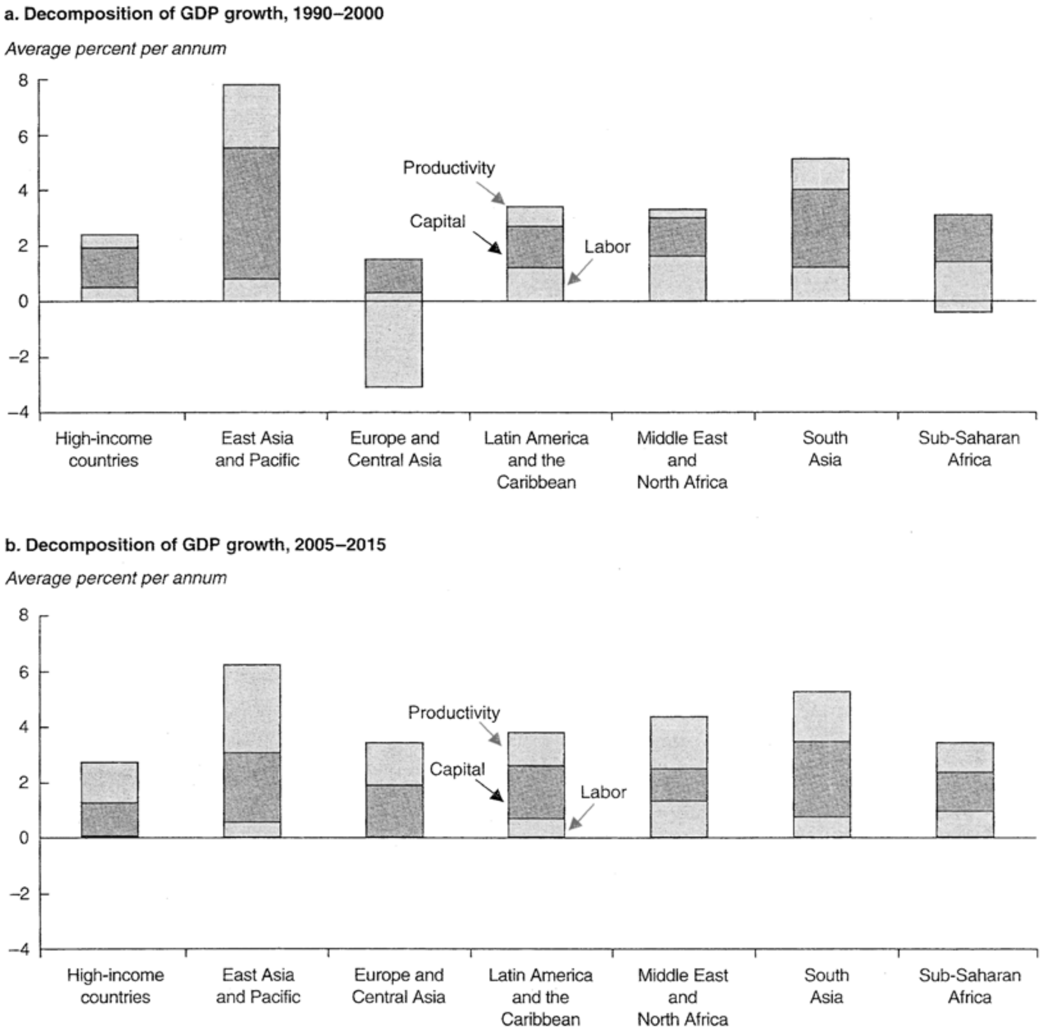


FIGURE 11-1. Productivity Will Contribute More to GDP Growth through 2015 Than Will Capital or Labor. *Source:* World Bank 2004f:44.

In all DCs, growth in national income per worker is attributed more to increases in output per unit of input (the residual factor) than to increases in inputs, labor, capital, and land. Denison indicates that sources for increased output per worker for the United States or Northwestern Europe include advances in knowledge, economies of scale, improved allocation of resources, reduction in the age of capital, and decreases in the time lag in applying knowledge. Other empirical studies have included organizational improvements, increased education and training, learning by experience, and (linked to it) product variety (D. Addison 2003:4).

Western and Japanese total factor productivity growth slowed down after 1973. Martin Neil Baily and Robert J. Gordon (1986:347–420) show that 10 percent of the slowdown in annual productivity growth in the United States from 1948–73 to 1973–87 results from the understatement in productivity gains in the manufacture of

computer power. However, the understatement of productivity improvement in the use of computers in nonmanufacturing sectors is virtually nil.

Learning by Doing

Technical change can be viewed as a prolonged learning process based on experience and problem solving, that is, doing, using, and interacting (D'Costa 1998:273). Each successive piece of capital equipment is more productive, as learning advances are embodied in new machines. Learning not only takes place in research, educational, and training institutions but also through using new capital goods. Japan, which copied Western techniques for producing toys, cameras, and electronics after World War II, became a leader in these industries through this kind of hands-on learning.

A **learning curve** measures how much labor productivity (or output per labor input) increases with cumulative experience. Thus, a Swedish ironworks increased its output per worker-hour 2 percent per year despite no new investment and no new production methods for 15 years. Likewise, U.S. Air Force engineers assume a constant relative decline in labor required for an airplane body as the number of airframes previously produced increases. A constant relative decline in labor requirements as output expands means labor costs approach zero as cumulative production tends to infinity – a nonsensical idea if output runs were long, but because in practice they tend to be less than 20 years, economists can safely use this form of the learning curve (Arrow 1962:154–194). Furthermore, the British scholars of technical progress Charles Kennedy and A. P. Thirlwall (1972:38–39) argue that, even where learning by doing from a good ends, where product types are constantly changing, we can assume there is no aggregate limit to the learning process.[3]

The Nobel laureate Joseph Stiglitz (1998:197–210) contends that markets for information and knowledge are highly imperfect. Because of external economies, that is, cost reductions spilling over to other goods and producers (Chapter 5), firms whose workers learn by using capital equipment cannot hold on to some of the benefits of this learning. Knowledge is like a public good that is difficult for firms to appropriate, resulting in an undersupply of knowledge and learning (ibid.). The **social profitability** (profits adjusted for divergences between social and private benefits and costs) of investment exceeds profitability to the firm. Thus, the investment rate under competitive conditions may be lower than the one optimal for society. The state may wish to subsidize investment to the point that its commercial profitability equals its social profitability.

Growth as a Process of Increase in Inputs

Some economists contend that virtually all economic growth can be explained by increases in inputs. In Chapters 5 and 6, we discussed the importance of the human

[3] According to Glenn MacDonald and Michael Weisbach (2004:S289), however: "The evolution of technology causes human capital to become obsolete. . . . Experience and learning by doing may offer the old some income protection, but technology advance always turns them into has-beens."

capital input in increasing labor quality and economic growth. Theodore W. Schultz, in his presidential address to the American Economic Association in 1961, suggests that most of the residual can be attributed to investment in this input rather than to technical progress. He argues that

> Studies of economic growth based on increases in man-hours worked and on increases in capital restricted to structures, equipment, and inventories, presumably with quality held constant, do not take account of the important changes that occur over time in the quality of labor and of material capital goods. The advance in knowledge and useful new factors based on such knowledge are all too frequently put aside as if they were not produced means of production but instead simply happened to occur over time. This view is as a rule implicit in the notion of technological change. (Schultz 1961:1–17; see also Schultz 1964)

Economists contending that output is explained by increases in input attribute the growth in total factor productivity to research, education, and other forms of human capital. Indeed Mankiw, Romer, and Weil's (1992:407–437) empirical evidence (see Chapter 5) indicates that the overwhelming share of economic growth is explained by increases in inputs, human capital, physical capital, and labor. Dale W. Jorgenson and Zvi Griliches (1967:249–283) show that if quantities of output and input are measured accurately, the observed growth in total factor productivity in the United States is negligible, accounting for only 3.3 percent of economic growth. However, in reply to Denison's careful analysis (1972:37–64), Jorgenson and Griliches (1972:65–94) admit they erred in adjusting for changes in utilization of capital and land. Still, adjusting for the error leaves substantial scope for the importance of the growth of factor inputs. Moreover, for developing countries, a much larger growth share is explained by increased inputs.

From one perspective, capital includes anything that yields a stream of income over time. Investment is net addition to material, human, and intellectual capital. Improvements in people's health, discipline, skill, and education; transfers of labor to more productive activities; and the discovery and application of knowledge constitute human and intellectual capital. Economic development, then, may be viewed as a generalized process of capital accumulation (Johnson 1976:542–547). This approach is valuable, as it emphasizes the relative return from alternative resource investments.

Zvi Griliches (1994:1–23), in his presidential address to the American Economic Association, lamented that measuring growth is difficult and data are scanty. Nevertheless, he noted that, thanks to some pioneering studies, economists know much more about the sources of input growth than they did in the 1960s.

The Cost of Technical Knowledge

Countries at different levels of technical learning use the same technology at widely varying levels of efficiency. The same steel mill costs three times as much to erect in Nigeria as in South Korea, and, once it operates, is only half as productive (Lall 1993:95–108).

Choices among technologies, which continually change, are poorly defined. Technical knowledge, which is unevenly distributed internationally and *intra*nationally, is acquired only at a cost and is almost always incomplete, so that any person's knowledge is smaller than the total in existence. Less-developed areas can almost never acquire technical knowledge in its entirely, as blueprints, instructions, and technical assistance fail to include technology's implicit steps.[4] Learning and acquiring technology does not result automatically from buying, producing, selling, and using but requires an active search to evaluate current routines for possible changes. Search involves people gathering intelligence by purchasing licenses, doing joint research, experimenting with different processes and designs, improving engineering, and so forth. The LDC firms and governments obtain technical knowledge through transfer from abroad[5] as well as internal innovation, adaptation, and modification. Paradoxically, LDCs can only buy information from abroad before its value is completely assessed, because this implies possessing the information.

The price of knowledge, determined in the wide range between the cost to the seller (often a monopolist) of producing knowledge and the cost to the buyer of doing without, depends on the respective resources, knowledge, alternatives, and bargaining strengths of both parties. Selling knowledge, like other public goods, does not reduce its availability to the seller but does decrease the seller's monopoly rents (Nelson 1978:18; Fransman 1986).

Research, Invention, Development, and Innovation

Technical progress results from a combination of research, invention, development, and innovation. **Basic research** consists of systematic investigation aimed at fuller knowledge of the subject studied. **Applied research** is concerned with the potential applications of scientific knowledge, frequently to commercial products or processes. Development refers to technical activities that apply research or scientific knowledge to products or processes (Kennedy and Thirlwall 1972:11–72). Some research and development results in **invention**, devising new methods or products. At times, invention may require development. The commercial application of invention is innovation, discussed in Chapter 12.

According to one study, investment in agricultural research in the United States from 1940 to 1950 yielded a return of at least 35 percent per year, whereas that in hybrid corn research from 1910 to 1955 yielded at least 700 percent yearly (Griliches

[4] M. Bell and K. Pavitt (1995:74) recognize that "in fact technology consists of complex 'bundles' of information both codified and tacit. . . . Because tacit information is not readily transferable among firms and countries, technological blueprints do not contain inherent performance characteristics. . . . Instead, these blueprints have to be translated into specifications and procedures that are specific to particular applications – an uncertain creative process that can result in highly variable levels of performance."

[5] Sports provide a model for understanding how technology gets disseminated. Cricket was invented in England in the 16th century, and soccer in England and baseball and basketball in the United States in the 19th century. Yet, through competition, clinics, learning in the inventors' countries, and foreign coaching, the "technology" of shooting, batting, passing, and defending has been transferred around the world so that Latinos and Asians (eventually Africans) are dominant in many of these sports.

1958:419–431). In his 1968 presidential address to the American Economic Association, Kenneth E. Boulding (1970) speculated that the rate of return on the small investment in economic research was several hundred percent per year over the period from 1945 to 1965 (Boulding 1970:151).[6]

Despite these spectacular results, *organized* research and development (abbreviated as R&D) as a whole has had only a modest impact on the rate of economic growth, as much of it generates no new knowledge. Edward F. Denison (1962) estimates that only 7.5 percent of U.S. per capita growth from 1929 to 1957 can be attributed to organized R&D. Today, over half of these expenses are for defense and space programs, which have had only incidental benefits to civilian production. Furthermore, many economists are skeptical that creativity flourishes in the institutionalized R&D setting. Much technical progress results from on-the-job problem solving and performance improvement rather than from work done in R&D departments. Technical progress in DCs' firms, regardless of the department of origin, can have substantial spillover effect in increasing LDC output through trade, the spread of multinational corporations, and the purchase or borrowing of technology from abroad (see Chapter 15). The impact of these spillovers may be greater than that of the R&D of developing countries, which is usually a smaller percentage of GNP than in DCs.

Yet, studies like Denison's assume R&D spending is a flow cost used to produce output in a given year rather than an asset that accumulates through time. Thus, these studies, which assume current spending alone measures innovation, leave out accumulated knowledge (Kamien and Schwartz 1982:51).

A firm's size, monopoly power, and product diversification will determine how much R&D it does. If it is large, monopolistic, and diverse, the enterprise is more likely to capture the benefits from R&D (Kennedy and Thirlwall 1972:61–62).

However, in competitive product markets like grain, the individual producer can appropriate only a small fraction of the benefits accruing from research. For example, Griliches indicates that consumers received almost all of the social returns of government-sponsored research on hybrid seed corn in the United States (Griliches 1958:419–437). Corn farmers, or even the hybrid seed corn industry, would probably not have undertaken the research, as private rates of return were far below social rates. When such a divergence in these rates exists, the case for government investment in research is strong.

In the 1950s and 1960s, U.S. and British technological leaders, with the highest ratio of R& D spending to GNP, had some of the lowest rates of productivity growth. How fast technology diffuses determines global inequality and LDCs'

[6] Boulding (1970:151) emphasizes the Great Depressions prevented by economic research. The rate of return on economic research has probably decreased, however, since Boulding wrote. In the late 1970s, an economic adviser to the Carter administration, Alfred Kahn, admitted that economists do not know how to reduce inflation substantially without increasing unemployment. A number of difficult economic problems exist in developing countries. However, in contrast to U.S. economic issues, few of these problems have been researched, suggesting that returns to economic research in the third world would be high.

relative position. Alexander Gershenkron (1952) maintains the "advantage of relative backwardness." There are potential advantages for countries that are **technology followers,** like early post–World War II Japan, and South Korea and Taiwan, in the last quarter of the 20th century. Although followership requires an early emergence of indigenous technological capacity, it may not require deep levels of knowledge.

From World War II to the 1980s, rapidly growing Japan and Germany were large net importers of technology, whereas slow-growing Britain and the United States were not, suggesting that part of the latters' industrial problems is too little awareness of others' inventions and development (Franko 1983:24).

However, the catch-up process is self-limiting because as a follower catches up, the possibility of making large leaps by acquiring best-practice technology becomes smaller and smaller. The potential for rapid growth by a follower, such as Japan and Germany, weakens as its technological level converges toward that of the leader, the United States (Abramovitz 1986:387–389). As Japan has shifted to leadership in numerous industrial sectors, it has had to orient its technological policies and educational system toward original research at the technical frontier, which is more expensive than followership. Indeed, as Chapter 3 argues, Japan had exhausted benefits from post–World War II technological catch-up, learning by doing, and internal and external economies of scale by the 1980s; Germany's postwar "advantages from backwardness" also dissipated about the same time. Moreover, the United States increased its relative gap vis-à-vis Germany and Japan in the 1990s by enjoying the world's fastest growth in TFP (although, as indicated later, not necessarily the fastest growth in information technology TFP).

Computers, Electronics, and Information Technology

In the 1980s, economists studying the sources of growth noticed a **productivity paradox**, observing no positive relationship between information and communications technology (ICT) investments and productivity (Matambalya 2003:524). In 1987, the Nobel economist Robert Solow quipped that "You can see the computer age everywhere but in the productivity statistics" (Crafts 2001:2).

But history indicates a substantial time lag for major innovations. Like all enabling and general purpose technological innovations, the computer started as a crude specific-purpose technology, taking decades to be improved, embodied in reorganized workplaces, and diffused throughout the economy. The more demanding the technology is, the longer the learning curve (Lipsey 2001:4).

Although James Watt patented the first efficient steam engine in 1769, Richard Arkwright began using this new invention in his textile mill in 1783. But the economic historian Nicholas Crafts (2001:9, 21) indicates no effect of steam power on TFP until the beginning of the railway age, 1830, with the opening of the Liverpool and Manchester (U.K.) Railway. However, even in 1830–60, steam power only increased Britain's TFP by 0.01 percentage points yearly. Moreover, the massive investment in railway construction after 1830 contributed only 0.21 percentage points annually to

Britain's GDP, 1830–60. Overall, the railroad companies in the United States made no money from their investment, and railroad's TFP was modest in the late 19th century (Crafts 2001; DeLong 2003b).

In 1871, Zenobe Theophile Gramme introduced the first electric motor of commercial significance. Paul David (1991:315–348) shows that it took four or more decades for the majority of U.S. industries to electrify. He speculates that a new technology needs 50-percent industry penetration before having a revolutionary impact.

ICT, just as steam, railroads, and the electric dynamo, took several decades to affect productivity.[7] In the 1970s, when ICT's effects first became visible, ICT's productivity effect could only be captured at the micro level, not at the aggregate level of national income. However, by the late 1990s and the first years of the 21st century we see a socioeconomic transformation on par with the Industrial Revolution. Still, in LDCs, the low share of ICT in aggregate national investment obscures the high returns of the few enterprises adopting ICT (Matambalya 2003:526; Lipsey 2001:4).

For Paul David (2001:7), ICT requires three new directions to benefit productivity.

> First, a growing range of purpose-built and task-specific information technologies, such as supermarket scanners and other data logging devices [must] become available. Second, networking capabilities and the emergence of a networked environment [must underpin] a re-configuration of work organization. Third, the development of Internet technology [must introduce] an entirely new class of organization-wide data processing applications.

Crafts (2001:20) estimates that the total contribution of ICT (computing equipment, communications equipment, and software) to GDP per-capita growth (from ICT capital and increased TFP) in the United States was 0.69 percentage points in 1974–90, 0.79 percentage points in 1991–95,[8] and 1.86 percentage points in 1996–2000. However, these estimates fail to include increased TFP of non-ICT sectors from ICT-facilitated work reorganization and knowledge spillovers.

By the 1990s, ICT was well integrated into production, showing up as a source of growth of GDP in DCs. ICT investment complemented human capital, physical infrastructure, and other private investment. With ICT established as a contributor to DC growth, some economists began to ask about ICT's impact on the development of poor countries. Matti Pohjola (2001:1–2) asks: "Could IT [information technology] provide poor countries with the short-cut to prosperity by allowing them to bypass some phases of development in the conventional, long-lasting and belt-tightening process of structural change from an agrarian to an industrial and, ultimately, to a knowledge-based services economy?"

Low-cost information and communication technology improves allocative efficiency by choosing input–output combinations to minimize cost at prevailing factor

[7] According to Caselli (1999:78–102), these innovations were skill-biased, requiring fast learners and costly new skills that took time to develop, whereas Henry Ford's assembly line was deskilling, increasing the demand of (and relative wages for) unskilled workers.

[8] Indeed, there was little correlation between ICT spending per capita and annual productivity growth, 1984–94 (Sichel 1997:119).

prices, augments technical efficiency through cutting costs by better access to both factor and product markets, and facilitates economies of larger-scale production by breaking labor and capital constraints. Sub-Saharan Africa and South Asia, the two least computerized world regions (World Bank 2003h:298–301), have been hampered by a deficiency of infrastructure, including a lack of telephone mainlines, a long waiting list for subscribing to phones, expensive local telephone calls, and few mobile phones, personal computers, and Internet hosts (Matambalya 2003: 531–536).

India, with more than a billion people, had only 56 million cellular phone users at the end of 2004. However, since the 1990s' economic reform and further deregulation of telecommunications in the first decade of the 21st century, the Indian government has opened telecommunications to an unprecedented degree of private and foreign participation. In 2003, the share of the Indian population with cellphones was 2 percent compared to 20 percent for China. With competitive expansion, "customers can get most [telecom] services they want dirt cheap" in India, making it "one of the world's hottest markets for telecommunications handset makers, equipment suppliers, and investors," according to the *Wall Street Journal* reporter Joanna Slater (2004b:A13). Subscribers to mobile phones, which just surpassed those to mainline phones in India in 2005, are expected to reach more than 130 million by 2008 (ibid.). China also has expanded its Internet phone service, hoping to leapfrog Western landline telephones (Ramstad and Brown 2004:B4).

Jeffrey Sachs (2000:81), Director of Columbia University's Earth Institute contends: "Today's world is divided not by ideology but by technology," the digital divide between rich and poor. Fifteen percent of the world's population, most of the OECD countries (including South Korea) plus Taiwan, are technological innovators, identified as those countries with 10 or more patents per million population. About 50 percent of the world, with at least 2 percent of GDP being high-tech exports, are technological adopters. Adopters include northern Mexico, Costa Rica, Argentina, Chile, Tunisia, South Africa, Israel, India (except the Ganges valley states), Singapore, Malaysia, Indonesia, Thailand, coastal China, the Baltic states, Russia (in a narrow strip near St. Petersberg), plus OECD countries New Zealand, Spain, Greece (northeastern), Poland, Czech Republic, Slovak Republic, Hungary, Slovenia, Romania, and Bulgaria. The rest of the world is technologically excluded, according to Sachs. Their greatest problems are "tropical infectious disease, low agricultural productivity and environmental degradation, . . . requiring technological solutions beyond their means" (ibid.).

Mancur Olson (1996:3–24) indicates the cheapness of borrowing and adopting foreign technology. South Korea was poorer than Ghana in 1950 but surpassed it in 1963 to 1979, partly through spending miniscule funds for royalties and all other payments for disembodied foreign technology, usually less than 1/1000th of GDP. Foreign direct investors in Korea, owners of productive knowledge, acquired, by Olson's estimate, less than one-fiftieth of the gains from Korea's rapid economic growth during these 16 years. South Korea's path to becoming a leading generator of new technical knowledge supports the assumption that most of the world's productive knowledge is available to poor countries at a relatively modest cost.

In 1965, Intel's Gordon Moore coined Moore's law, envisioning the doubling of computer capacity and the halving of computer and software prices every two years. The radical miniaturizing potential from nanotechnology, with millions of transistors on the head of a pin, could continue this trend throughout the early years of the 21st century. Pohjola (2001:13), who uses "hedonic price indices that take account of each year's improvement in the performance of computing equipment," shows that the price of personal computers declined 18 percent yearly from 1958 to 1994, necessitating a log scale to show these price reductions in a single graph. Indeed, according to Pohjola, if technical progress in the automobile had proceeded at an 18 percent annual rate after invention, the price of a car today would only be $5!

From 1960 to 1995, productivity growth in the Group of 7 (G7) economies – Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States – was slow, especially in the United States.[9] Economists have thoroughly documented the resurgence of GDP growth in the United States in the late 1990s, fueled by ICT investment.[10] Trends in the other G7 economies are more difficult to detect, "partly because of discrepancies among official price indexes for IT equipment and software" (Jorgenson 2003:1). However, using internationally harmonized IT prices that eliminate many discrepancies, Harvard's Dale Jorgenson found that all G7 economies, not just the United States, enjoyed an IT investment that boosted growth in the late 1990s. Whereas in other G7 economies, IT investment growth was partly countered by weaker growth in non-IT investment, TFP growth accelerated from the early to late 1990s in all except Italy (ibid., pp. 1–24 and Appendix; DeLong 2003a).

In 2001, the world information technology expenditures (computer hardware and software, data communications equipment, and computer services) were about $2,000 billion, about 1/20th of 1 percent of world gross investment. In the same year, high-income countries had 396.9 Internet users per 1,000 people, with middle-income countries 36.8 and low-income countries 6.4 (U.N. Development Program 2003:277). The proportion of people with computers that same year showed somewhat comparable ratios: 416.3 per 1,000 in high-income economies, 35.4 in middle-income economies and 6.1 in low-income countries (World Bank 2003h:300). Figure 11-2 shows that, among LDC regions, Latin America and the Caribbean leads with 59.3 personal computers per 1,000 people, while at the bottom are sub-Saharan Africa, with 9.9, and South Asia, with 5.3, per 1,000. Table 11-1 indicates that, in 2001, Japan spent more on information and communications technology (ICT) per capita, $3,256, than any other country, with the United States second with $2,923, Denmark third with $2,912, and Sweden fourth with $2,804. Among those listed,

[9] The fastest productivity growth during this period was in Japan.

[10] ICT increases the services sector's productivity through such substitutions as: (1) digital bugle taps instead of coronets played live at funerals of fallen U.S. service men and women and (2) the Opera Company of Brooklyn, New York performing Mozart's opera, "The Marriage of Figaro," with 12 musicians and a technician overseeing a computer program playing other parts instead of a full orchestra (Hilsenrath 2003:A1). But is the computerized output the same service?

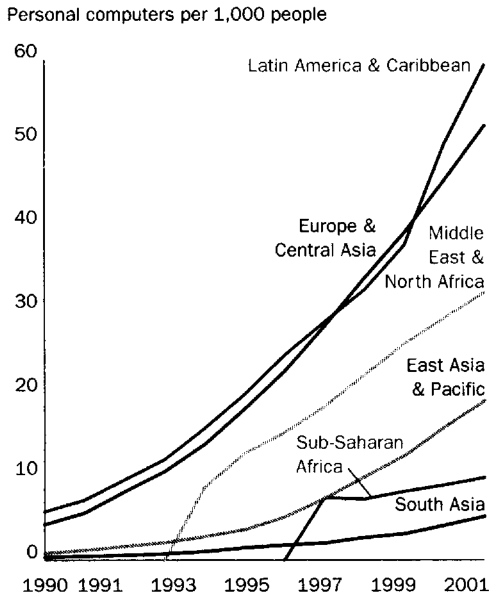


FIGURE 11-2. Personal Computers per 1,000 People (by LDC regions). *Source:* World Bank 2003i:301.

low-income economies such as Indonesia (17), India (19), and Vietnam (26), spent least on ICT per capita.

In 1990, the world had 98 mainline phones and 2 mobile phones per 1,000 people; in 2001, 169 mainline and 153 mobile per 1,000 (UNDP 2003:277). Projections suggest that the number of mobile phones surpassed mainline phone by the middle of the first decade of the 21st century. Travelers to major cities in middle-income economies such as China (the largest cellphone market in the world, with about 174 million users in 2003 [Ramstad 2003:B7]), Malaysia, and Mexico and even low-income economies such as India, Bangladesh, Nigeria, Vietnam, and Cambodia are likely to be impressed by the ubiquity of the mobile telephone. Mobile phones, based on satellite technology, do not require the massive infrastructure investment that mainline telephones do. In Senegal, allowing local entrepreneurs to offer telecommunications services, with private telecenters with a telephone and perhaps a fax machine, has increased public access (World Bank 2001h:87). Moreover, once government allows competitive markets for mobile providers, these firms soon outstrip public-sector telecommunications firms previously considered "natural monopolies." The World Bank (2003f:98) indicates that in Africa in 2001, mobile subscribers were 3.5 per 100 inhabitants in competitive markets compared to only 0.8 in monopoly markets.

In 1998, almost half ICT imports by OECD countries were from non-OECD countries, primarily in Asia (OECD 2000). A number of LDCs have high ratios of high technology (products with high R&D intensity, such as in aerospace, computers, pharmaceuticals, scientific instruments, and electrical machinery) exports (much from foreign investment) to total manufactured exports, 2001: the Philippines

TABLE 11-1. Information and Communications Technology Expenditures

	(1) As percentage of GDP, 2001	(2) Per capita $, 2001
Low-income countries		
India	3.9	19
Indonesia	2.2	17
Vietnam	6.7	26
Middle-income countries		
Argentina	4.0	310
Brazil	8.3	287
Bulgaria	3.8	65
Chile	8.1	371
China	5.7	53
Colombia	12.0	231
Czech Republic	9.5	483
Egypt, Arab Rep.	2.5	37
Hungary	8.9	466
Malaysia	6.6	262
Mexico	3.2	196
Philippines	4.2	41
Poland	5.9	271
Romania	2.2	43
Russian Federation	3.3	68
Slovak Republic	7.5	325
South Africa	9.2	269
Sri Lanka	5.1	769
Thailand	3.7	76
Turkey	3.6	143
Venezuela, RB	4.0	199
High-income countries		
Australia	10.7	1,939
Austria	7.2	1,764
Belgium	8.1	1,870
Canada	8.7	1,960
Hong Kong, China	8.7	2,110
Denmark	9.3	2,912
Finland	7.7	1,938
France	9.1	2,048
Germany	7.9	1,880
Greece	6.1	688
Ireland	6.2	1,704
Italy	5.7	1,117
Japan	9.6	3,256
Korea, Rep.	7.4	676
Netherlands	9.3	2,327
New Zealand	14.4	1,835
Norway	7.2	2,573
Portugal	6.5	735
Singapore	9.9	2,110
Slovenia	4.7	496
Spain	5.1	769
Sweden	11.3	2,804
Switzerland	10.2	3,618
United Kingdom	9.7	2,319
United States	7.9	2,924

Source: World Bank 2003h:298–300.

70 percent (Intel, Canon, Fujitsu, Ankor, Olympus Optical), Malaysia 57 percent (semiconductors, robotics, advanced electronics, medical equipment, optoelectronics, software engineering, biotechnology, aerospace), Costa Rica (Intel, Lucent, Hitachi, and Panasonic) 36 percent, Thailand 31 percent, Mexico 22 percent, China 20 percent, and Brazil 18 percent (World Bank 2003h:302–305). How much does dependence on foreign investment and outsourcing hamper the potential of the growth of high-tech exports in the future? Anthony P. D'Costa (2003a:51–82) contends that India's software services' export dependence on a single market, the United States, contributes to a lower trajectory for innovation, with few domestic backward or forward (user feedback) linkages. India's concentration of skills is not in programming, design, and systems but in software services and low-tech ICT-enabled services, with minimal scope for climbing the ladder to complex high-value projects.

However, some Asian manufacturers use ICT at the forefront of sales and marketing innovation. The *Wall Street Journal* (Kahn 2003:A1) reports how J. C. Penney slashed shirt inventory from six months to virtually zero by outsourcing inventory management to a Hong Kong shirtmaker, TAL Apparel Ltd. Harry Lee, TAL's managing director, with a U.S. Ph.D. in electrical engineering, hired programmers, "who designed a computer model to estimate an ideal inventory of house-brand shirts for each of Penney's 1,040 North American stores, by style, color and size." TAL collects point-of-sale information directly from Penney's stores, runs the data through its computer model, and "decides how many shirts to make, and in what styles, colors and sizes." Sending the shirts directly to each Penney's store bypasses warehouses and corporate decision makers. At times, TAL sends shirts to stores by air freight to keep its customer happy. In 2003, TAL, which made one in eight dress shirts sold in the United States, "supplied labels such as J. Crew, Calvin Klein, Banana Republic, Tommy Hilfiger, Liz Claiborne, Ralph Lauren and Brooks Brothers." More North American retailers are depending on suppliers that can respond swiftly to changing demands.

In the late 1990s, although the Somalian state had collapsed, the growth in telecommunications facilities, including expensive satellite telephones, expanded rapidly. Herders and border traders, who had little access to formal banking institutions, and the Somali diaspora in the West and the Middle East, used Internet, fax, and telephone services to transfer remittances home. This informal *hawala* ("transfer" in Arabic) avoided the need to carry large amounts of cash. In 2001–03, much of this system, tainted by accusations of terrorist links, was shut down by pressure from the U.S. government (Little 2003:138–144).

Some ICT innovations are on a smaller scale. Remember Bangladesh's Grameen Bank, discussed in Chapter 6. A subsidiary of the bank, Grameen Telecom operates village pay phones that lease cellular telephones to rural women and other bank members, who use the phone to provide services and earn money. These phones lower the cost of information gathering, contributing to "lower prices for poultry feed, more stable diesel prices, and less spoilage of perishable goods due to more

precise shipment dates. . . . Telephone users include both rich and poor, but poor people make more calls for economic reasons" (World Bank 2001f:73).

Cellular phone technology gives Bangladesh women more bargaining power. Halima Khatuun, a poor, illiterate woman who sells eggs indicated

> I always sell eggs to middlemen. In the past, whatever prices they offered, I accepted because I had no idea about the going prices of eggs. . . . Last week, the middleman came and desired to pay me 12 taka per hali [four units] . . . Keeping him waiting, I rushed to check the prices through the Village Phone. The price was 14 taka per hali of eggs in nearby markets. I came back and refused to sell to him at the lower prices. . . . After a brief haggling, we agreed to buy and sell at 13 taka per hali." (World Bank 2001f:73)

Artisans in the Middle East and North Africa have long crafted high-quality products using traditional techniques. But local markets, an important source of income for poor people, are shrinking. Gaining access to lucrative national and international markets is difficult. The Virtual Souk, an internet-based marketplace, now provides direct access to world markets for hundreds of artisans from Egypt, Lebanon, Morocco, and Tunisia, many of whom are women. Since 1999, online sales have soared exponentially, reaching DC markets and increasing proceeds substantially (ibid.).

In Sri Lanka, according to the World Bank (2001f:87), rural telephone service increased farmers' share of the price of crops from 50–60 to 80–90 percent (World Bank 2001b:87).

Bangladesh cellular phone technology and the Middle Eastern Virtual Souk have empowered artisans and petty traders, indicating that some LDC poor are reducing the digital divide. Moreover, the Internet, with its low entry barriers, is providing alternative sources of information, overcoming the restrictions of the national and international press, radio, and television (U.N. Development Program 2002a:77).[11] Better communication increases the incomes and information of poor and middle-class people.

An increasing portion of a modern information-oriented economy is weightless, shortening the "distance" between consumers and producers of knowledge products. Commodities (computer software, telecommunications, semiconductors, algorithms, financial services, databases, libraries, media entertainment, and Internet delivery) retain their value independent of their physical manifestation. The growth model assumes a system of intellectual property rights, in which the researcher obtains a patent for a useful idea and uses the patent, or sells it to a firm producing an intermediate good (Pohjola 2001:1–5; Quah 2001:93).

[11] Sugata Mitra, NIIT, New Delhi, India, installed a computer with high-speed Internet connection in a hole in the wall in a slum next to their office, leaving it open for anyone to use. The slum children, many without primary education, downloaded music, and opened games, Disney sites, and sites with current events and cricket news. The experiment was replicated in at least 100 locations in India (Aggarwal 2002).

Investment Criteria

Investable resources can be used in a number of ways: to build steel mills or fertilizer plants, to construct schools, to buy computers, to expand applied research, to train agricultural extension agents, and so on. And because there are not enough resources to go around, we must choose among investments. The rest of this chapter indicates how we can make these choices in an economically rational way.

MAXIMUM LABOR ABSORPTION

In LDCs, labor – often underemployed and having low alternative costs – is usually considered the abundant factor, and capital, the scarce factor. Thus, we might expect LDCs to specialize in labor-intensive goods (that is, those with high labor–capital ratios). Specifically, this means that LDCs should replace the capital-intensive industrial techniques common in DCs with more labor-intensive approaches.

As discussed in Chapter 10, appropriate technology for LDCs should fit their factor proportions. According to E. F. Schumacher (1965:91–96), the advocate of small is beautiful (Chapter 2), an **intermediate technology** is needed – techniques somewhere between Western capital-intensive processes and the LDCs' traditional instruments. In practice, however, many LDCs use capital-intensive methods. Sometimes, entrepreneurs, bound in inertia, may not question existing capital-intensive designs. But these techniques have other attractions in LDCs as well.

1. Businesspeople often want to use the most advanced design without knowing that it may not be the most profitable. James Pickett, D. J. C. Forsyth, and N. S. McBain (1974:47–54), on the basis of field research in Africa, attribute this attitude to an **engineering mentality**.

> Engineers . . . are professionally driven by . . . the half-artistic joy in technically perfecting the productive apparatus. . . . The engineer's interest is in technical efficiency – in extracting the maximum amount of sucrose from a given input of sugar cane; and from this standpoint machines are often more reliable than men. . . . A decision is taken, for example, to establish a plant of some given productive capacity in a developing country. Engineers trained according to developed country curricula are asked to design the plant. They produce blueprints for a limited number of alternatives, each of which is a variant on current "best-practice" technique. The alternatives are submitted to economic . . . scrutiny, the most attractive chosen, and another capital-intensive, technologically inappropriate plant is established.[12]

2. For many commodities, there may be no substitute for a highly capital-intensive production process, as the ratio of capital to labor is unalterable (Chapter 10). With fixed factor proportions, a given amount of capital may not fully employ

[12] The economist rejects the technically most efficient process where less costly inputs or improved revenue prospects increase social profitability. Economic efficiency implies that the use of a resource should be expanded when the extra social revenue associated with it exceeds the extra social cost, and contracted when the reverse occurs, even if this implies substituting crude labor-intensive machines for the "best-practice" sucrose-extracting machines.

the labor force. Yet, there may be no other technologies available using higher ratios of labor to capital to produce the specified commodities.

3. Capital-intensive methods embodying technical advances may be cheaper per output unit than either traditional labor-intensive approaches or newly designed intermediate technologies. Businesspeople may find that modifying existing technologies is more expensive than using them without alteration. For, as Chapter 12 indicates, adapting existing Western technology to LDC conditions often requires substantial (and sometimes costly) creativity.
4. Automatic machinery may reduce the need for skilled workers, managers, or administrators, all of whom are scarce in developing countries. Conserving on expensive personnel may be as important as conserving capital in LDCs (see Chapter 10).
5. Although LDC labor is abundant and its wage is lower than in DCs, it is not necessarily cheaper to hire because its productivity may be lower. The **efficiency wage** (the wage rate divided by the productivity of labor) and wage costs per unit of output may differ little between LDCs and DCs (Thirlwall 1995:233–234).
6. Factor-price distortions may make capital, especially from abroad, cheaper than its equilibrium price. The reasons for these distortions, as indicated in Chapter 9, include minimum-wage legislation, pressure from organized labor, subsidies to capital, and artificially low foreign exchange prices.

Thus, maximizing a project's labor intensity is not a sound investment criterion. Nevertheless, LDC planners need to examine carefully technologies in which labor can be substituted for capital.

Yet most of the global stock of new technology is capital intensive. Buddhadeb Ghosh and Chiranjib Neogi (1993:308–325) recommend that a country acquire new technology even if capital intensive but modify through local R&D until it discovers the appropriate technology.

SOCIAL BENEFIT–COST ANALYSIS

Suppose society has a given amount of resources to invest to raise output. The objective is to allocate these limited resources to achieve the largest possible increase in the economy's capacity to produce goods and services. A standard approach, **social benefit–cost analysis**, more comprehensive than the just-discussed labor absorption criterion, states that you maximize the net social income (social benefits minus social costs) associated with a dollar of investment.

The net **present value** (V) of the stream of benefits and costs is calculated as

$$V = B_0 - C_0 + \frac{B_1 - C_1}{(1+r)} + \frac{B_2 - C_2}{(1+r)^2} + \cdots \frac{B_T - C_T}{(1+r)^T} = \sum_{t=0}^{T} \frac{B_t - C_t}{(1+r)^t} \qquad (11\text{-}1)$$

where B is social benefits, C is social costs, r is the social discount rate (the interest rate set by planners), t is time, and T is the life of the investment project.

Interest on capital reflects a discount of future income relative to present income, because more capital invested now means society produces a higher income in the

TABLE 11-2. Present Value of Hypothetical 20-Year Net Income Streams from Two Alternative $1 Million Investment Projects in Year 0 Discounted at 15 Percent per Year

Textile factory ($1 million initial K)			Sugar refinery ($1 million initial K)		
Year	Net income ($B_t - C_t$)	Net income (discounted to year 0)	Year	Net income ($B_t - C_t$)	Net income (discounted to year 0)
1	125,000	108,696	1	175,000	152,174
2	125,000	94,518	2	175,000	132,325
3	125,000	82,190	3	175,000	115,065
4	125,000	71,469	4	175,000	100,057
5	125,000	62,147	5	175,000	87,006
6	125,000	54,041	6	175,000	75,657
7	200,000	75,187	7	175,000	65,789
8	200,000	65,380	8	175,000	57,208
9	200,000	56,852	9	175,000	49,746
10	200,000	49,437	10	175,000	43,257
11	200,000	42,989	11	175,000	37,615
12	200,000	37,381	12	175,000	32,709
13	200,000	32,506	13	175,000	28,442
14	200,000	28,266	14	175,000	24,733
15	200,000	24,579	15	175,000	21,506
16	200,000	21,373	16	175,000	18,701
17	200,000	18,585	17	175,000	16,262
18	200,000	16,161	18	175,000	14,141
19	200,000	14,053	19	175,000	12,296
20	200,000	12,220	20	175,000	10,693
	3,550,000	$V = 968{,}030$		3,500,000	$V = 1{,}095{,}382$
	$\frac{V}{K} = \frac{968{,}030}{1{,}000{,}000} = 0.97$			$\frac{V}{K} = \frac{1{,}095{,}382}{1{,}000{,}000} = 1.10$	

Even though the summation of *undiscounted* net incomes is higher for the textile factory than the sugar refinery, planners should invest in the refinery, because its present value is higher. The example illustrates the importance of higher net incomes in the first few years before the discount factor is very high.

future. Thus, even where there is no risk or inflation, a dollar's worth of future income is never worth so much as today's dollar. Future values are always discounted, and the more distant the payoff, the greater the discount.

Suppose an irrigation project results in a net stream of $200 per year for 20 years, but nothing thereafter. The total net income stream is $200 \times 20 = \$4000$ over the investment life. Assume, however, that the discount rate is 15 percent. This discounts the $200 annual net return to $173.91 in the 1st year, $99.43 in the 5th year, $49.44 in the 10th year, $24.58 in the 15th year, and $12.22 in the 20th year. The discounted

value of the total income stream over the 20-year period is not $4,000 but only $1,251.87.

Now to return to decisions about investment, you should rank investment projects by their *V* (Table 11-2 shows how to rank two hypothetical investment projects by *V*). Choose projects with the highest ratio of *V* to *K* (the amount of capital to be allocated), then the next highest *V/K*, and so on, until the funds to be invested are exhausted.[13] Thus, a government agency choosing among investment projects, say, high-yielding varieties of seeds, oil wells, textile factories, sugar refineries, flour mills, primary education, and training industrial managers, should be guided by the following rule: *Maximize the contribution to national product arising from a given amount of investment.*

What discount rate to use?. The present value of the net income stream is critically dependent on the **discount** (or interest) **rate** used. To illustrate, the present value of an investment of $1,000, with a net income stream of $130 per year over the next 20 years, can change from more than $1,000 to less than $1,000, if the discount rate is raised from 10 percent to 15 percent.

The influential manual written by the Oxford professors Ian M. D. Little and James Mirrlees for the OECD (an organization of developed capitalist countries) indicates that the discount rate should be set high enough to equate new capital formation (investment) with the supply of domestic savings and capital imports available (say K_1 in Figure 11-3). At a given discount rate (r), *V/K* diminishes (the *V/K* curve is downward sloping) as capital projects increase. The *V/K* schedule rises (shifts to the right) as discount rates decrease and falls (shifts to the left) as discount rates increase.

Given the supply of savings and capital imports, planners should choose a discount rate so that the number of investment projects is consistent with a *V/K* equal to one; that is, present value of the net income stream is equal to the value of the capital invested (Equation 11-1). A too-low discount rate ($r = 10$ percent in Figure 11-2) results in excessive demand for investment, K_1K_2 and often a large international balance of payments deficit. For *V/K* to equal 1 (in Figure 11-3) at the point corresponding to the number of capital projects available, K_1, the discount rate must be 12.5 percent. A too-high discount rate ($r = 15$ percent) results in too little investment, K_0, so that the discount rate must be lowered to 12.5 percent to spur decision makers to use the savings and capital imports available.

Little and Mirrlees think most LDCs should use a real, or inflation-adjusted, interest rate of 10 percent. To illustrate, suppose $100 today and $200 next year are equivalent in buying power. A real interest rate of 10 percent would require a nominal

[13] After the projects are ranked, you may be able to increase the present value of all projects by shifting resources from projects with low *V/K* to those with high *V/K* Assume project A has a *V/K* of 1.8 and project B of 1.0. Switching a marginal dollar from project B to project A means that *V/K* for that dollar investment is increased from 1.0 to 1.8. Switches can continue until *V/K* is maximized; *V/K* is equalized for the last dollar invested in each project. However, in practice, when the project size is lumpy or discontinuous, as in the case of a dam or steel mill, these switches may not be possible.

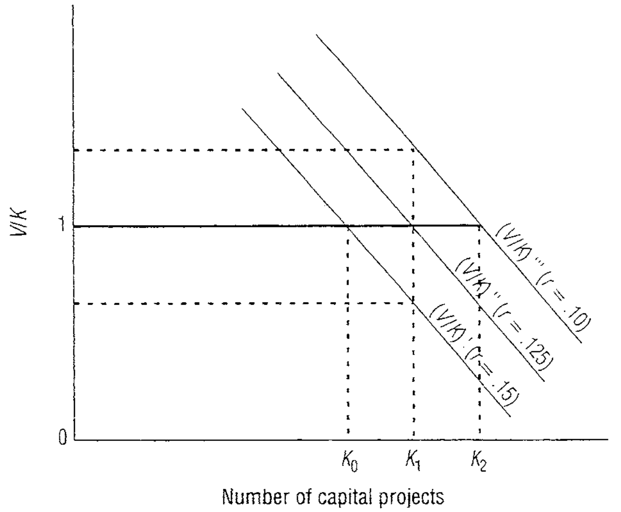


FIGURE 11-3. ***V/K*, Discount Rates, and Capital Projects.** Planners should choose a discount rate (for example, $r = 0.125$) so that the marginal project included has a $V/K = 1$ *and* just uses up the total investment funds available.

interest rate of 120 percent per year so that \$220 would be repaid next year for a loan of \$100 today.

In practice, they suggest the trial use of three rates – high, medium, and low – to sort out projects that are obviously good and obviously bad. The marginal ones can be put off until the planners see how large the investment program will be and whether any better projects come along to displace the marginal ones (Little and Mirrlees 1968; Baldwin 1972:20; Alchian and Allen 1972:467–468).

Risk and uncertainty. It is difficult to rank investment projects whose net income streams are risky or uncertain. **Risk** is a situation in which the probabilities of future net returns occurring are known. To calculate *V* (Equation 11-1), decision makers can specify the whole set of alternative net income streams, computing the expected present value of the alternative outcomes, each weighted by its probability. This approach is especially appropriate for risk-indifferent government planners who have numerous projects, a long time in which to work, and considerable borrowing capacity in the event of unexpected shortfalls, especially as governments (or even giant corporations) can pool risk. Indeed, the larger the population, the lower the projects' risk per individual citizen. To be sure, private individuals bear some risks, for example, students enrolled in courses in mechanics, farmers using high-yielding varieties of rice, and slum dwellers resettled in public housing. Moreover, individual risks from public investments vary depending on the distribution of income, preferences, and tax rates (Arrow and Lind 1970:364–378). Decision makers can, however, adjust expected present value for risk-taking or aversion. For example, the risk averse can place less value on probability distributions with a wide dispersion around the mean.

Many LDC investment choices are characterized by **uncertainty**, where the probabilities of net returns occurring are unknown. Yet this does not mean that planners must forgo project appraisal. Although the outcome of a particular investment may be uncertain, the risk of the entire investment program is negligible. Although the characteristics of success are uncertain, the ingredients for outright failure (political unacceptability, management incompetence, and so on) may not be. Meticulous feasibility studies of the project will help planners evaluate their abilities to respond to difficulties (often unforeseen). Although planners may not be able to rank some projects by *V/K,* they may still be able to make careful nonquantitative comparisons between projects (Yotopoulos and Nugent 1976:376–377; Knight 1921).

Differences between Social and Private Benefit–Cost Calculations

Under restrictive assumptions, the invisible hand of the market, dependent on thousands of individual decisions, will guide producers toward maximum social welfare. In an economy that consists of perfectly competitive firms that (1) produce only final goods, (2) render no external costs or benefits to other production units, (3) produce under conditions of constant (marginal opportunity) costs, and (4) pay market-clearing prices for production factors, a private firm that maximizes its rate of return also will maximize the increase in national product.

However, the social and private profitability of any investment are frequently different. When Equation 11-1 is used for the private firm rather than national-planning authorities, *B* becomes benefits and *C* costs incurred by the firm from the project, and *r* becomes the prevailing rate of interest that the firm pays on the capital market. Private investors want to maximize the commercial profitability of the investment. By contrast, the national planner is likely to consider not only the internal rate of return to a given investment project but also its effect on the profitability of other production units and on consumers. The following discussion examines the divergence between private and social marginal productivity.

EXTERNAL ECONOMIES

As indicated in Chapter 5, external economies are cost advantages rendered free by one firm to another producer or a consumer. So although the irrigation authority may not recover its investment in dams, reservoirs, canals, pumps, and tubewells directly, increased farm yields because of improved water supplies may make the social profitability of their investment quite high. Likewise, revenues generated by vaccinating people for measles, rubella, polio, and cholera may not cover costs but may substantially increase net social benefits by improving the health and productivity of the population. By contrast, the costs of external diseconomies, such as environmental pollution arising from iron smelting, chemical, and fertilizer plants, must be added to direct costs to arrive at any investment's net social impact.

The Dakha, Bangladesh, municipal authorities should consider externalities when they decide whether to build an underground railway of a given design. Officials can estimate the initial capital outlays spread over 8 years (compounding to get the value

of K in year 0) and against which must be set the stream of future net social benefits (gross benefits less operating costs) spread over 40 years but discounted to year 0.

Net social benefits will exceed net financial benefits if only because a lower fare would produce greater social benefits while reducing net receipts. The largest net benefit occurs when the fare is equal to the marginal operating cost, which varies throughout the day. But it is less cumbersome to hold the fare constant at average operating cost (or above average at peak hours, with a concessionary rate for other times).

Part of the annual gross benefit of the railway is the total receipts expected in each of the 40 years (say, 50 cents per ride times the number of riders). External benefits include the difference between 50 cents and the most people are prepared to pay for alternative road transport (auto, taxi, bus, bicycle, and rickshaw – a human-powered carriage) and the time, comfort, and safety benefits to riders (or to road users from less congestion).

If the capitalized value were $200 million in year 0 and the discount rate is correct, Dakha should build the underground if the sum of discounted future net benefits exceeds $200 million.

How do we calculate benefit cost if the railway adds equipment and other capital costs during the life of the underground? E. J. Mishan (1982) favors putting capital costs and operating costs together and entering all payments and external diseconomies as costs and all gross receipts and external economies as benefits. Thus, we invest if annual net benefits ($B - C$), which replace V in Equation 11-1, are at least zero (Gramlich 1990).

Planners be forewarned. Politicians have discovered the concept of *external economies,* using vague references to them to support inviable steel plants, dams, or port projects in their local districts. But even though planning agencies are generally responsible to the political leadership, careful feasibility studies, including evidence of the existence and the extent of externalities, can make a planning agency's recommendations difficult to override.

DISTRIBUTIONAL WEIGHTS

The social value of an investment may depend on who receives its benefits and bears its costs. In Equation 11-1, consumer goods produced for the rich count as much as for the poor. A government may express its goals of improving income distribution by weighing an investment's net benefits to the poor more heavily than to the rich (U.N. Industrial Development Organization 1972:75–80, 135–148).

In the 1950s, 1960s, or 1970s, the governments of Sudan, Kenya, and Tanzania, seized land from peasants, with traditional community use rights, to transfer to "modernizing" agricultural elites, often allied with leading politicians. The transfer resulted in more exploitative land practices and the encroachment on the livelihoods or even the eviction of peasants. Elites often manipulate benefit–cost calculations to justify these transfers. Decisions about interpersonal asset transfer are not amenable to simple benefit–cost calculations. The University of Massachusetts economist James Boyce

(2002:24) poses three questions concerning transfers from one party to another: "Who reaps the benefits? Who bears the costs? Why are the winners able to impose costs on the losers?" Many economists fail to raise such questions of power and distribution, instead analyzing the issue as one of social net benefit disconnected from interpersonal gains and losses.

INDIVISIBILITIES

The returns to many indivisible investment projects, such as bridges, dams, rail lines, and electrical plants, depend on economies of scale in the use of technology, capital, or labor (see Chapter 5). Electricity can be generated, for example, in small-scale coal or oil-based steam plants or in large-scale hydroelectric or nuclear power plants.

The benefit–cost calculation still applies in the presence of indivisibilities. However, they make the role of engineers and others who formulate the project more important. Thus, before evaluating a project on the basis of a given technology and scale, the project evaluator should be certain to ask engineers and others if all feasible technologies and scales have been considered (Yotopoulos and Nugent 1976:374).

MONOPOLY

A **monopoly** is a single seller of a product without close substitutes; an **oligopoly** has few sellers, with interdependent pricing decisions among the larger firms in the industry. Unlike pure competition, in which the individual firm faces a horizontal (perfectly elastic) demand curve, the pure monopolist faces a downward-sloping demand curve. Prices are higher and outputs lower in monopolistic resource and product markets than they are under pure competition.

Monopolistic restraints are frequent in LDCs, especially in the early stages of manufacturing. In many instances, industrial concentration is a by-product of official government policy, especially of fiscal incentives and controls. Also large firms know how to deal with the bureaucracy. Rare is the LDC government with the political ability and willpower to pursue antimonopoly policies. But if such a course *is* followed, trusts can be broken up; subsidies or preferential licensing of monopolistic pioneer companies eliminated; foreign ownership shares reduced; foreign companies made to divest themselves of ancillary production or marketing channels; or nationalization of monopolies undertaken.

However, nationalized enterprises may still behave as a private monopolist in pricing and output policies. In other instances, a monopoly may be natural, as when internal economies of scale bring about a continuously falling average cost curve that makes having more than one firm in an industry inefficient. Examples of these **natural public monopolies** may be telephone, electricity, water, or postal service. In these cases, fixed production and distribution costs are so large that large-scale operations are necessary for low unit costs and prices. Where competition is inappropriate, LDC governments can place monopolies under public ownership or regulation, so that consumers benefit from scale economies. Government can further

reduce resource misallocation from public monopolies if they are required to use competitive pricing policies – where marginal cost is equal to price.

Planners must realize that monopolistic behavior at a later stage in the production process can affect benefits at an earlier stage. Suppose an irrigation project leads to growing more sugar beets, so more sugar is refined. If the sugar refiner has a monopoly, the sugar beet farmers' demand for irrigation water will not be a sufficient indication of such a project's merits. If refiners were producing sugar competitively, they would use more beets, in turn increasing the demand for water. Obviously, the more monopolistic an industry, the more scope there will be for improving allocation through antimonopoly policies and marginal cost pricing. Even though economists can recommend such improvements, their only recourse in calculating benefit cost is to accept present and future prices and correct them for measurable externalities (Prest and Turvey 1965:683–735; Mishan 1982:111–153; Case and Fair 1996: 322–346).

SAVING AND REINVESTMENT

The usual benefit–cost analysis does not consider the effect of an investment's income streams on subsequent saving and output. Let us compare the irrigation project discussed earlier to a rural luxury housing project. Assume both projects have the same annual net income streams over a 20-year investment life. Let us focus only on the $200 annual net return ($99.43 discounted to the present) in the fifth year. Suppose that the commercial farmers whose incomes increased by $200 from the irrigation project invest $100 in farm machinery and buildings, which in turn increases net farm earnings for the next 20 years. Assume, though, that all of the income from the luxury housing project is spent on consumer goods. Should the additional income (discounted back to the present) attributed to the commercial farmers' investment not also be included in the net income streams of the initial irrigation project? By contrast, that none of the net earnings from luxury housing is reinvested would make that project less desirable.

Although it is not usually done, benefit–cost analysis can consider the effect of a project's net returns on subsequent saving and output (Galenson and Leibenstein 1955:343–370; Eckstein 1957:56–85). In some instances, the savings effect will conflict with the distributional effect, as higher income recipients usually save and reinvest more. Furthermore, as the income streams are even further in the future, their discounted value may be small, especially with high interest rates. Although accurate prediction is not possible, we can consider how much people are likely to save from income resulting from a particular investment project.

FACTOR PRICE DISTORTIONS

Chapter 9 indicated that wages in LDCs are frequently higher, and interest rates and foreign exchange costs lower, than market-clearing rates. Because of these distortions, the private investor may use more capital goods and foreign inputs and less labor than is socially profitable.

Shadow Prices

Prices do not measure social benefits and costs of an investment project if external economies and diseconomies, indivisibilities, monopolies, and price distortions are present. Prices observed in the market adjusted to take account of these differences between social cost–benefit and private cost–benefit calculations are **shadow prices**.

Planners use shadow (or accounting) prices to rectify distortions in the price of labor, capital, and foreign exchange. The following examples illustrate how this adjustment is usually made. The shadow wage for unskilled industrial labor, based on its alternative price in agriculture, may be only Rs. 0.50 per hour when the prevailing wage is Rs. 1.00 per hour. Even though businesspeople borrow money at subsidized rates from government loan boards at only a 12-percent interest rate, the shadow interest rate, based on the cost of capital on the world market, may be 18 percent. The shadow (equilibrium) foreign exchange rate may be Rs. 26 = $1, whereas the actual rate, repressed by import and exchange restrictions, may be Rs. 13 = $1. Thus, the foreign-made computer purchased by a domestic firm for only Rs. 26,000 ($2,000) has a shadow price of Rs. 52,000. Correspondingly, the accounting price of raw jute exported for $1,000 a ton is Rs. 26,000 compared to the Rs. 13,000 received by the seller at the official exchange rate.

Little and Mirrlees (1968:92) determine the shadow prices of both inputs and outputs by their world prices, because these "represent the actual terms on which the country can trade." However, they argue that, as traded goods are valued in world prices, nontraded goods must be similarly valued, in order to "ensure that we are valuing everything in terms of a common yardstick."

Very few economists favoring the use of shadow prices question Little's and Mirrlees's valuations of goods that are or could be traded. But to value nontraded items in world prices involves a lot of trouble for doubtful advantage. Usually, input–output data and purchasing power equivalents do not exist, so we cannot accurately value local goods in terms of world prices. In most countries, it is probably simpler and sufficiently accurate to (1) use world prices for inputs and outputs that are traded; (2) convert these values into domestic currency at an exchange rate (using a market rate if the official rate is badly out of line); and (3) value at domestic factor costs (shadow or market prices as appropriate) for nontraded inputs. In most investment projects, any distortions in the values of nontraded inputs are not likely to be important (Baldwin 1972:16–21).

Shadow pricing can open up Pandora's box. To illustrate, the shadow price of capital may depend on a distorted wage whose shadow rate requires calculation, and so on for other factors. Scarce planning personnel may have more important tasks than computing shadow prices from a complex system of interindustry equations, especially when data are lacking and shadow rates continually change. In addition, a government that, say, hires labor on the basis of a shadow wage lower than the wage paid increases its payroll costs and budget deficit (Stolper 1966:82–90).

Many developed capitalist countries have prices near enough to equilibrium that shadow prices are not needed for government planning. It would seem much easier

for LDC governments to change foreign exchange rates, interest rates, wages, and other prices to equilibrium prices, which would make planning less cumbersome and time consuming and improve the efficiency of resource allocation.

Chapter 9 discussed how to decrease factor price distortions by (1) cutting wages and fringe benefits, (2) reducing interest rate subsidies, and (3) increasing the price of foreign exchange to an equilibrium rate. Yet price distortions are difficult to remove. Low elasticities of demand for urban labor may limit how much wage reductions expand employment (see Chapter 9). Increased foreign exchange prices (say, from Rs. 13 = $1 to Rs. 26 = $1) will not improve the balance of trade (exports minus imports of goods) if sums of the export and import demand elasticities are too low. An inelastic demand for an LDC's exports results in only a modest increase in rupee export receipts, which may not compensate for the increase in rupee import payments from inelastic import demand (that is, a relatively small quantity decline in response to the relatively large rupee price increase from the increased foreign exchange price). In LDCs, import demand elasticity is often low as a result of high tariffs, extensive quantitative and other trade restrictions, and exchange controls.

Moreover, equilibrium prices may conflict with other policy goals. The LDC governments may not want to weaken labor unions' ability to protect the rights and shares of workers against powerful employers. Subsidized capital may be part of a government plan to promote local enterprise. Young, growing debtor nations borrowing capital to increase future productivity (for example, the United States and Canada in the late 19th century) may not be able to attain a foreign exchange rate that eliminates an overall balance of payments deficit.

Furthermore, existing distortions may be supported by economic interests too powerful for government to overcome. These interests may include organized labor, local enterprises receiving subsidies, industries competing with imports, firms favored with licensed foreign inputs, industrial and import licensing agencies, and central banks.

The LDC governments may be faced with a choice between the Scylla of cumbersome shadow price calculations and the Charybdis of factor price modification. Although the case for adjusting LDC prices nearer to their equilibrium rate is strong, the technical and political obstacles to doing so are often formidable.

Conclusion

1. The growth in total factor productivity is the increased worker productivity arising from factors other than increases in capital per worker.
2. Capital formation and technical progress are major factors responsible for the rapid economic growth of the West and Japan in the last 125–150 years.
3. Economic growth cannot be explained merely by increases in inputs.
4. Econometric studies of *developed* countries indicate that the increase in the productivity of each worker per unit of capital is a more important source of growth than the addition in capital per worker. Major explanations for this increase in

productivity are advances in knowledge, greater education and training, learning by experience, organizational improvement, economies of scale, and resource shifts.

5. However, research on the sources of growth in *developing* countries provides evidence that the contribution of capital per worker is more important to economic growth than that of worker productivity per unit of capital. Reasons for the greater contribution of capital to growth in LDCs are higher marginal productivity of capital and higher growth rates of capital.
6. Technical progress results from a combination of research, development, invention, and innovation.
7. Technical knowledge acquired from abroad is costly and usually incomplete.
8. LDC planners must examine existing technologies for possible substitution of labor for capital. Nevertheless, the maximization of labor absorption is inadequate as an investment criterion. Labor-intensive techniques may sometimes not be used because of fixed capital–labor ratios in the industry, the high cost of adapting and modifying existing technologies, scarce administrative and managerial resources needed to implement labor-intensive techniques, and distortions that increase the price of labor relative to that of capital.
9. Social benefit–cost analysis chooses investment projects that maximize the discounted net social benefits per unit of capital invested.
10. The discount rate should be set high enough to equate investment with savings and capital imports.
11. The investment planner who wants to avert risk can place less value on probability distributions with a wide relative dispersion around the average.
12. Market prices must be adjusted for externalities, distribution, indivisibilities, monopolies, and factor price distortions to obtain shadow prices. These prices aid the planner in adjusting returns away from commercial profitability to social profitability.
13. Computing shadow prices is usually a cumbersome and time-consuming task. Setting factor and foreign exchange prices closer to equilibrium rates may be more effective in improving resource allocation.
14. After a lag, computers and ICT have increased productivity greatly.

TERMS TO REVIEW

- absorptive capacity
- applied research
- basic research
- capital import
- development
- discount rate
- efficiency wage
- engineering mentality
- factor price distortion
- financial intermediaries
- incremental capital-output ratio (ICOR)
- intermediate technology
- invention
- investment
- learning curve

- monopoly
- natural public monopoly
- net present value
- oligopoly
- present value (V) of the net income stream
- productivity paradox
- residual
- risk
- shadow prices
- social benefit–cost analysis
- social profitability
- technical progress
- total factor productivity (TFP)
- uncertainty
- value added

QUESTIONS TO DISCUSS

1. What measures can LDC governments take to increase net capital formation as a percentage of national income?
2. How useful is the Lewis model in explaining early growth in capital formation in developing countries?
3. How adequate is the market for making saving decisions in LDCs?
4. Is there much potential for using previously idle resources to increase LDC capital formation rates?
5. How can LDCs improve the tax system to increase saving?
6. What is the relative importance of capital formation and technical progress as sources of economic growth? In the West? In LDCs?
7. Why is capital accumulation more important as a source of growth in LDCs than in DCs? Why is technical progress less important?
8. What contributes to growth in output per worker-hour besides increases in capital per worker-hour?
9. How do economists conceptualize technical knowledge? What effect does cost have in technology search?
10. Can growth be conceptualized as a process of increase in inputs?
11. How is the price of knowledge determined?
12. What implications does learning by doing have for LDC domestic and international technological policies?
13. What are some of the advantages and disadvantages of technology followership?
14. What criterion would you recommend that a planner use in allocating investible resources among different projects and sectors in a less developed economy?
15. What is social benefit–cost analysis? Explain how it is used to rank alternative investment projects.
16. What are the differences between social and private benefit–cost calculations?
17. What is the maximum labor absorption investment criterion? What are its flaws?
18. What are the attractions of capital-intensive techniques in capital scarce LDCs?
19. How would Chongqing (China) municipal authorities decide whether to build a bridge across the Yangtze River?
20. How do planners choose what discount rate to apply to investment projects?
21. What are shadow prices? Give some examples. What is a planning alternative to the use of shadow prices? Evaluate this alternative.

22. How much effect have computers, electronics, and information technology had in increasing productivity, especially in LDCs? Give examples. How great is the digital divide between DCs and LDCs?

GUIDE TO READINGS

Stiglitz (1998:197–210) examines the market for information and the extent of market failure. The economic historian Paul David (1991:315–348) discusses the long time for major new technologies to influence an economy's aggregate productivity. Pohjola (2001) includes several case studies on the effect of information technology on economic development. D'Costa (2003a:51–82; 2003b:1–26; 2003c:297–305) is a leading expert on the Indian software industry. The World Bank's annual *World Development Indicators* (also on CD-ROM) has the latest data on ICT, similar to World Bank (2003h:297–305). UNCTAD (2002) has a report on e-commerce, e-finance, and economic development. Edwards (2002:19–43) argues that the Internet and ICT are not the answer to accelerating growth in Latin America and other LDCs. Arora and Gambardella (2005) and Wilson (2005) discuss IT in LDCs.

For *Handbook of Development Economics* information, see Behrman and Srinivasan (1995d) on resources, technology, and institutions; Besley (1995) on savings and credit; Evenson and Westphal (1995) on technological change and technology strategy; and Stiglitz (1988) on economic organization, information, and development.

The annual *World Development Report* of the World Bank has information on LDC saving and investment rates. Yotopoulos and Nugent (1976:393–395) and Panchamukhi (1986) critically review ICORs and growth.

Arrow (1962:154–194) is the classic article on learning by doing. Boardman, Greenberg, Vining, and Weimer (2001) have a textbook on benefit–cost analysis. Other manuals providing guidelines for investment choice and benefit–cost analysis are Gramlich (1990), Mishan (1982), and Little and Mirrlees (1968). Baldwin's essay (1972) provides a brief, simple explanation of benefit–cost analysis.

Adelman (1961) discusses the classical approach to saving decisions. Lewis (1954:139–161), Ranis and Fei (1961:533–565); and Fei and Ranis (1964) analyze the increase in saving in a dual economy. Bruton (1965:154–158) is a good source for ideas on how to raise rates of capital formation in LDCs.

Griliches (1994:1–23) examines research and development, technical progress, and growth in productivity. Fransman (1986); and Dosi, Freeman, Nelson, Silverberg, and Soete (1988) analyze technical progress, whereas Kennedy and Thirlwall (1972) have a survey of technological change.

Schumacher (1973) makes a strong case for using intermediate technology, especially in LDCs.

12 Entrepreneurship, Organization, and Innovation

> Perhaps one day a saga may be written about the modern captain of industry. Perhaps, in the civilization which succeeds our own, a legend of the entrepreneur will be thumbed by antiquarians, and told as a winter tale by the firelight, as today our sages assemble fragments of priestly mythologies from the Nile, and as we tell to children of Jason's noble quest of the Golden Fleece. But what form such a legend may take it is not at all easy to foresee. Whether the businessman be the Jason or the Aetes in the story depends on other secrets which those unloved sisters keep hid where they store their scissors and their thread. We have, indeed, the crude unwrought materials for such a legend to hand in plenty, but they are suitable, strange to say, for legends of two sharply different kinds. The Golden Fleece is there, right enough, as the background of the story. But the captain of industry may be cast in either of two roles: as the noble, daring, high-souled adventurer, sailing in the teeth of storm and danger to wrest from barbarism a prize to enrich his countrymen; or else as a barbarous tyrant, guarding his treasure with cunning and laying snares to entrap Jason, who comes with the breath of a new civilization to challenge his power and possession. (Dobb 1926:3)

The entrepreneur, with a dream and will to found a private kingdom, to conquer adversity, to achieve success for its own sake, and to experience the joy of creation, is a heroic figure in economic development, according to Joseph A. Schumpeter (1961:3), sometime finance minister in an Austrian Socialist government and professor of economics in Bonn, in Tokyo, and at Harvard. In a similar vein, the Harvard psychologist David C. McClelland (1961) perceives the efforts of the entrepreneur, in controlling production in both capitalist and socialist economies, as largely responsible for rapid economic growth. For McClelland, the entrepreneur, driven by an inner urge to improve, is motivated by profits as a measure of achievement rather than as a source of enrichment.

Economic historians emphasize that such Schumpeterian captains of industry as John D. Rockefeller (oil), Andrew Carnegie (steel), Cornelius Vanderbilt (railroads), James B. Duke (tobacco and power), and Jay Gould and J. P. Morgan (finance) led the 50-year economic expansion before World War I that made the United States the world's leading industrial nation. Rockefeller combined managerial genius, capacity for detail, decisiveness, frugality, and foresight with a ruthless suppression of competition, the use of espionage and violence to gain competitive advantages, and a general neglect of the public interest to become the symbol of the virtues and vices of these "robber barons" (Nash 1964:347–348).

But surely an economy does not require Rockefellers, Vanderbilts, and Goulds for rapid development. The functions of entrepreneurship, organization, and innovation are not limited to the large private sector but can be exercised by the Argentine flour miller, the Malaysian cobbler, or the Chinese government planner and factory manager. Except in an anarchist utopia, the need for entrepreneurship is free of ideology.

Despite exceptions, such as Jamshedjee Tata, responsible for India's first steel mill in 1911, the political, cultural, and technological milieu was not right for vigorous, industrial, entrepreneurial activity in present LDCs, especially before the 1960s or 1970s or so.

Scope of the Chapter

The **entrepreneur** can be viewed in at least four ways: (1) as the coordinator of other production resources – land, labor, and capital; (2) as the decision maker under uncertainty; (3) as the innovator; and (4) as the gap filler and input completer. The last two concepts, which are the most relevant for economic development, are discussed in the first two sections of this chapter.

We next look at entrepreneurial functions in LDCs. After this, we consider the family as an entrepreneurial unit. The multiple entrepreneurial function is then discussed. The next two sections examine McClelland's and Hagen's analyses of the effect of social and psychological factors on entrepreneurship. Subsequent sections consider the entrepreneur's socioeconomic profile – occupational background, religious and ethnic origin, social origin and mobility, education, and sex. The last section discusses technological mobilization and innovation in socialist and transitional economies.

Entrepreneur as Innovator

The rapid economic growth of the Western world during the past century is largely a story of how novel and improved ways of satisfying wants were discovered and adopted. But this story is not just one of inventions or devising new methods or products. History is replete with inventions that were not needed or that, more frequently, failed to obtain a sponsor or market. For example, the Stanley Steamer, invented early in the 20th century, probably failed not because it was inferior to the automobile with the internal combustion engine but because the inventors, the Stanley brothers, did not try to mass-produce it. No, to explain economic growth, we must emphasize innovation rather than invention. Economists have paid little systematic attention to the process of **innovation** – the embodiment in commercial practice of some new idea or invention – and to the innovator.

SCHUMPETER'S THEORY

Schumpeter (1961; 1939) is the exceptional economist who links innovation to the entrepreneur, maintaining that the source of private profits is successful innovation

and that innovation brings about economic growth. He feels that the entrepreneur carries out new economic combinations by (1) introducing new products, (2) introducing new production functions that decrease inputs needed to produce a given output, (3) opening new markets, (4) exploiting new sources of materials, and (5) reorganizing an industry.

The Schumpeterian model begins with a **stationary state**, an unchanging economic process that merely reproduces itself at constant rates without innovators or entrepreneurs. This model assumes perfect competition, full employment, and no savings nor technical change; and it clarifies the tremendous impact of entrepreneurs on the economic process. In the stationary state, no entrepreneurial function is required, as the ordinary, routine work, the repetition of orders and operations, can be done by workers themselves. However, into this stationary process, a profit-motivated entrepreneur begins to innovate, say, by introducing a new production function that raises the marginal productivity of various production resources. Eventually, such innovation means the construction of new plants and the creation of new firms, which imply new leadership.

The stationary economy may have high earnings for management, monopoly gains, windfalls, or speculative gains, but has no entrepreneurial profits. Profits are the premium for innovation, and they arise from no other source. Innovation, however, sets up only a temporary monopoly gain, which is soon wiped out by imitation. For profits to continue, it is necessary to keep a step ahead of one's rivals – the innovations must continue. Profits result from the activity of the entrepreneur, even though he or she may not always receive them.

New bank credit finances the innovation, which, once successfully set up, is more easily imitated by competitors. Innovations are not isolated events evenly distributed in time, place, and sector; they arise in clusters, as a result of lowered risk. Eventually, the waves of entrepreneurial activity not only force out old firms but also exhaust the limited possibilities of gain from the innovation. As borrowing diminishes and loans are repaid, the entrepreneurial activity slackens and finally ceases. Innovation, saving, credit creation, and imitation explain economic growth, whereas their ebb and flow determine the business cycle.

THE SCHUMPETERIAN ENTREPRENEUR IN DEVELOPING COUNTRIES

For William J. Baumol (2002), the pressures for innovation under oligopolistic competition, with a few giant firms dominating the market, has provided incentives for unprecedented growth in the last century or so. Indeed, among large, high-tech business firms, innovation has replaced price as the important competitive weapon in the market. Capitalism is more likely to encourage productive entrepreneurship rather than rent-seeking (that is, nonproductive) pursuit of profit.

However, Schumpeter indicates that his theory is valid only in capitalist economies prior to the rise of giant corporations. Indeed, Schumpeter fears oligopolistic concentration may give rise to the fall of capitalism. Thus, Schumpeter's theory, assuming perfect competition, may have limited application in mixed and capitalist

LDCs, as many industries in these countries, especially in manufacturing, are dominated by a few large firms.

Moreover, it seems unrealistic to preclude the possibility that Schumpeterian innovation may mean expansion of already existing firms. In fact, in the real world, characterized by imperfect competition, an established organization would frequently have an advantage in developing new techniques, markets, products, and organizations.

Furthermore, Schumpeter's concept of the entrepreneur is somewhat limited in developing countries. The majority of LDC Schumpeterian entrepreneurs are traders whose innovations are opening new markets. In light of technical transfers from advanced economies, the development of entirely new combinations should not unduly limit what is and is not considered entrepreneurial activity.

People with technical, executive, and organizational skills may be too scarce in less-developed countries to use in developing new combinations in the Schumpeterian sense. And, in any case, fewer high-level people are needed to adapt combinations from economically advanced countries.

STAGES IN INNOVATION

Technical advance involves (1) the development of pure science, (2) invention, (3) innovation, (4) financing the innovation, and (5) the innovation's acceptance. Science and technical innovation interact; basic scientific advances not only create opportunities for innovation, but also economic incentives and technical progress can affect the agenda for, and identify the payoffs from, scientific research. Links from production to technology and science are often absent in LDCs. Yet low-income countries can frequently skip stages 1 and 2 and sometimes even stage 3, so that scarce, high-level personnel can be devoted to adapting those discoveries already made (Maclaurin 1953:97–111; Fransman 1986:47–48).

Entrepreneur as Gap-Filler

The innovator differs from the manager of a firm, who runs the business along established lines. Entrepreneurs are the engineers of change, not its products. They are difficult to identify in practice, as no one acts exclusively as an entrepreneur. Although they frequently will be found among heads or founders of firms, or among the major owners or stockholders, they need not necessarily hold executive office in the firm, furnish capital, or bear risks.

Entrepreneurship indicates activities essential to creating or carrying on an enterprise in which not all markets are well established or clearly defined, or in which the production function is not fully specified or completely known. The Nobel economist Ronald H. Coase identifies two major coordinating instruments within the economy: the entrepreneur, who organizes within the firm through command and hierarchy, and the price mechanism, which coordinates decisions between firms. The choice between organization within the firm or by the market (that is, the "make or buy" decision)

is not given or determined by technology but mainly reflects the transactions costs of using the price system, including the cost of discovering what prices are (Coase 1937:386–405).[1]

An entrepreneur (an individual or groups of individuals) has the rare capability of making up for market deficiencies or filling gaps. There is no one-to-one correspondence between sets of inputs and outputs. Many firms operate with a considerable degree of slack (Leibenstein 1966:392–415; Leibenstein 1968:72–83). Thus, the entrepreneur, especially in LDCs, may need to seek and evaluate economic opportunities; marshal financial resources; manage the firm; and acquire new economic information and translate it into new markets, techniques, and products, as it may not be possible to hire someone to do these tasks. To illustrate, if an upper skiving machine is essential for making men's fine leather shoes; if no one in the country produces this machine; and if imports are barred, then only entrepreneurs who know how to construct the machine can enter the fine leather footwear industry.

The entrepreneur also must be an "input completer." For any given economic activity, a minimum quantity of inputs must be marshaled. If less than the minimum is available, the entrepreneur steps in to make up for the lack of marketable inputs by developing more productive techniques; accumulating new knowledge; creating or adopting new goods, new markets, new materials, and new organizational forms; and creating new skills – all important elements in economic growth. As indicated in Chapter 11, growth cannot be explained merely by increases in standard inputs, such as labor and capital. Entrepreneurial gap filling and input completing help explain why labor and capital do not account for all outputs. No fixed relationship between inputs and outputs exists, partly because entrepreneurial contributions cannot be readily quantified, predicted, planned for, or controlled.

Functions of the Entrepreneur

As we hinted earlier, we feel Schumpeter's concept of the entrepreneur should be broadened to include those who imitate, adapt, or modify already existing innovations.[2] Indeed, Addison (2003:5) finds that LDCs' imitating DCs, boosted by higher educational attainment, is the major factor contributing to increased total factor productivity. Most business activity in a nonstationary state requires some innovation. Each firm is uniquely located and organized, and its economic setting changes over time. Thus, absolute imitation is impossible, and techniques developed outside the firm must be adapted to its circumstances. This necessity is especially apparent when

[1] Coase argues that "a firm . . . consists of the system of relationships which comes into existence when the direction of resources is dependent on an entrepreneur. . . . As a firm gets larger, there may be decreasing returns to the entrepreneur function, that is, the costs of organizing additional transactions within the firm may rise" (pp. 388–389).

[2] Although Schumpeter did not consider the imitator to be an entrepreneur, he did contrast the imitating entrepreneur with the innovating entrepreneur. Entrepreneurs who adapt innovations already in existence could be said to be involved in both imitation and innovation.

an LDC firm borrows technology from an advanced economy with different, relative factor prices – for example, a higher labor price relative to capital. These adaptations require, if you will, innovation if defined in a less restrictive sense than Schumpeter used it.

In a changing economy, it is difficult to distinguish between the adaptations of day-to-day management and the entrepreneur's creative decisions. Peter Kilby's following list (1971:1–40) of 13 entrepreneurial roles includes some management functions.

Exchange relationships

1. Seeing market opportunities (novel or imitative)
2. Gaining command over resources
3. Marketing the product and responding to competition
4. Purchasing inputs

Political administration

5. Dealing with the public bureaucracy (concessions, licenses, taxes, and so forth)
6. Managing human relations in the firm
7. Managing customer and supplier relations

Management control

8. Managing finances
9. Managing production (control by written records, supervision, coordinating input flows with customer orders, maintaining equipment)

Technological

10. Acquiring and overseeing plant assembly
11. Minimizing inputs with a given production process – industrial engineering
12. Upgrading processes and product quality
13. Introducing new production techniques and products

The economist who analyzes Western economies frequently limits the entrepreneurial function to activities 1 and 2: It is assumed that the remaining skills can be purchased in the marketplace. But the extent to which the entrepreneur can delegate these activities to competent subordinates depends on many variables: the scale of production; how well developed the market is for such highly skilled labor; the social factors governing how responsible hired personnel will be; and the entrepreneur's efficiency in using high-level managerial employees. Because many of the markets for skilled people in developing countries are not well developed, entrepreneurs frequently have to perform these tasks themselves. Studies of entrepreneurs in LDCs indicate that production, financial, and technological management are least satisfactory (ibid.).[3]

[3] Indeed, Lazear (2004:208–211) contends that even in DCs entrepreneurs are jack-of-all-trades, exemplifying a variety of skills.

Kilby (2003:15), who later revisited his 1971 essay, stresses that LDCs have more of a deficiency in the demand (opportunity) for, rather than the supply (capacity) of, entrepreneurs. Deficient demand means impediments in the economic environment resulting from a lack of technology and complementary factors, including not only resources of production but also infrastructure, incentives, information, and bureaucratic skills (ibid.; Nafziger 1977:83–89; Schatz 1963:42–56).

Family as Entrepreneur

The family enterprise, which is widespread in less-industrialized countries, is usually small and managed primarily by the father or eldest son. As the dominant form of economic organization in 19th-century France, the family firm was conceived of as a fief to maintain and enhance the position of the family, and not as a mechanism for wealth and power (Landes 1949: 45–61). However, some of the leading industrial conglomerates in developing countries are family-owned. For example, India's largest private manufacturers are usually members of old trading families, who control several companies. Frequently, family members specialize their roles according to industry, location, or management function.

Family entrepreneurship can mobilize large amounts of resources, make quick, unified decisions, put trustworthy people into management positions, and constrain irresponsibility. Thus, among the Igbo people in Nigeria, families guarantee that debts are paid, and their solidarity provides strong sanctions against default, as individual failure reflects on family reputation. The extended family frequently funds apprentice training and initial capitalization, although it may hinder the firm's expansion by diverting resources to current consumption (Nafziger 1969:25–33).

In India, the extended family involved in business activity is usually methodical in choosing its investments in the human capital of its children. The family may use its income and enterprises to provide the training, education, travel, and business experience of its children, and to purchase plant and equipment that is most appropriate for the young businessperson's entrepreneurial development. As youngsters, the children in business families are exposed to a business milieu and learn about the family enterprises. Where the family has sufficient income, it enrolls the children in excellent schools, frequently encouraging its offspring to study law, economics, engineering, or business administration at the university, and sometimes even providing foreign travel and training. A family with several children may diversify their educations among subjects relevant for business. During school vacations and after graduation, each son, and increasingly in the last two decades each daughter, is moved from job to job within the family's production units, gradually increasing the child's responsibility. Moreover, families sometimes arrange marriages to further alliances with other prosperous business families (Nafziger 1975:131–148).

Family entrepreneurship, however, may be conservative about taking risks, innovating, and delegating authority. Paternalistic attitudes in employer–employee relationships prevail, and family-owned firms are often reluctant to hire professional managers. This reluctance, however, may reflect the critical shortage of professionals

and managers in LDCs – especially those who can occupy positions of authority without ownership – rather than the idiosyncrasies of the family. In addition, most family firms are too small to afford outside managers. And we must add that paternalism and authoritarianism are feudal legacies characteristic of many enterprises in developing countries, and not unique to family businesses.

Multiple Entrepreneurial Function

Frequently today, with the increased complexity of business firms, the entrepreneurial function may be divided among a business hierarchy. Such a hierarchical functioning might be more appropriately labeled organization rather than entrepreneurship. Organization connotes not only the constellation of functions, persons, and abilities used to manage the enterprise but also how these elements are integrated into a common undertaking (Harbison 1956:364–379). Organization may be either profit- or social-service-oriented, giving the concept applicability to both private and public sectors.

Achievement Motivation, Self-Assessment, and Entrepreneurship

Psychological evidence indicates that in early childhood, a person unconsciously learns behavior that is safest and most rewarding and that such learning substantially influences adult behavior. For example, the individual who is encouraged to be curious, creative, and independent as a child is more likely to engage in innovative and entrepreneurial activity as an adult. Although a society may consciously attempt to nurture imagination, self-reliance, and achievement orientation in child rearing and schooling, scholars used to consider this process slow and uncertain at best and requiring at least a generation before it would affect entrepreneurship and economic growth.

McClelland (1961) contends that a society with a generally high **need for achievement** or urge to improve produces more energetic entrepreneurs, who, in turn, bring about more rapid economic development. He argues that entrepreneurs can be trained to succeed. Scholars are quite skeptical of the validity of McClelland's findings. Nevertheless, achievement motivation training (along with practical training in management, marketing, and finance and assistance in project conception and planning) is more and more a part of programs at entrepreneurship development centers (McClelland and Winter 1971).[4]

Boyan Jovanovic (1982:649–670) finds that differences in entrepreneurial ability, learned over time, determine a person's business entry or exit. From business experience, people acquire more precise estimates of their ability, expanding output as they revise their ability estimates upward, and contracting with downward revisions of ability.

[4] See Nafziger (1986a:61–70), for an elaboration of criticisms of the McClelland approach.

Theory of Technological Creativity

HAGEN'S THEORY

On the Theory of Social Change (1962), by the economist Everett E Hagen, uses psychology, sociology, and anthropology to explain how a traditional agricultural society (with a hierarchical and authoritarian social structure where status is inherited) becomes one in which continuing technical progress occurs. Because the industrial and cultural complex of low-income societies is unique, they cannot merely imitate Western techniques. Thus, economic growth requires widespread adaptation, creativity, and problem solving, in addition to positive attitudes toward manual labor.

Hagen suggests that childhood environment and training in traditional societies produce an authoritarian personality with a low need for achievement, a high need for dependence and submission, and a fatalistic view of the world. If parents perceive children as fragile organisms without the capacity for understanding or managing the world, the offspring are treated oversolicitously and prevented from taking the initiative. The child, repressing anger, avoids anxiety by obeying the commands of powerful people.

Events that cause peasants, workers, and lower elites to feel they are no longer respected and valued may catalyze economic development. For Hagen, this process occurs over many generations. Increasingly, adults become angry and anxious; and sons retreat and reject their parents' unsatisfying values. After several generations, women, reacting to their husbands' ineffectiveness, respond with delight to their sons' achievements. Such maternal attitudes combined with paternal weakness provide an almost ideal environment for the formation of an anxious, driving type of creativity. If sons are blocked from other careers, they will become entrepreneurs and spearhead the drive for economic growth.

A CRITIQUE

One problem with Hagen's theory is that loss of status respect is an event so broadly defined that it may occur once or twice a decade in most societies. Nor does the theory explain groups, for example, 17th-century English Catholics, who lost status but did not become entrepreneurs. Furthermore, the interval between status loss and the emergence of creativity varies from 30 to 700 years, so that Hagen's hypothesis fits almost any case.

Although Hagen charges economists with ethnocentrism, he applies a Western-based personality theory to vastly different societies and historical periods. In addition, his case studies provide no evidence of changes in parent–child relationships and child-training methods during the early historical periods of status loss. Moreover, the economic historian Alexander Gerschenkron (1965:90–94) convincingly argues that the position, training, and discipline of the child in modern Germany, Austria, and Sweden resemble those described in Hagen's traditional society. Finally, Hagen slights the effect on entrepreneurial activity of changes in economic opportunities, such as improved transport, wider-reaching markets, the availability of foreign capital and technology, and social structure. But, despite its inadequacies, Hagen's work

has made economists more aware of the importance of noneconomic variables in economic growth.

Occupational Background

Many studies of industrial entrepreneurs in developing countries indicate trade was their former occupation.[5] A trading background gives the entrepreneur a familiarity with the market, some general management and commercial experience, sales outlets and contacts, and some capital. A number of traders entered manufacturing to ensure regular supplies or because they can increase profits. Frequently, a major catalyst for this shift was government policy following independence from colonial control. At that time, governments often encouraged import substitution in manufacturing through higher tariffs, tighter import quotas, and an industrial policy that encourages the use of domestic inputs. Even with government encouragement, traders going into manufacturing often have had trouble setting up a production line and coordinating a large labor force.

Writers on entrepreneurship occasionally mention a "trader mentality" that leads to an irrational preference for the quick turnover rather than the long-run returns that manufacturing offers. Frequently, however, the trader may lack industrial management and technical skills. In addition, the business milieu, social overhead services, and government policies may not encourage industry. It is not irrational for entrepreneurs to prefer trade to manufacturing if they believe incomes are higher in trade. For some traders, an industrial venture may await government programs in technical and management training, industrial extension, and financial assistance.

In most developing countries, numerous young people are apprenticed to learn such skills as baking, shoemaking, tinsmithing, blacksmithing, tanning, and dressmaking from a parent, relative, or other artisan. Even though some have argued that artisans trained in this way have less drive and vision and direct relatively small firms, some of them have, nonetheless, become major manufacturers. This transformation is especially pronounced in early phases of industrialization, such as in England's Industrial Revolution and today's less-developed countries. The scale of the enterprise may gradually expand over several years or even generations. Even so, relatively few artisans can make the leap from the small firm owner to manufacturer. However, artisans and their students benefit from industrial innovation as well as from training and extension programs. Apprentice systems inevitably improve with the introduction of new techniques. Economists should not overlook these artisans, since they contribute to industrial growth.

In general, most successful industrial entrepreneurs have borne or shared chief responsibility for the management of at least one enterprise before their present activity, whether this work was in another manufacturing unit or in handicrafts, trade,

[5] The following studies were consulted: Sayigh (1962); Alexander (1960:349–365); Alexander (1964); Kilby (1965); Harris (1967); Berna (1960); Nafziger (1978); Papanek (1962:46–58); Carroll (1965).

transport, or contracting. Few industrialists, however, were once farmers. Except for landowners, very few farmers have had the funds to invest in industry. And even landlords are poorly represented. They tend to place a high value on consumption and real estate expenditure and lack experience in managing and coordinating a production process with specialized work tasks and machinery and in overseeing secondary labor relations.

Few people in developing countries move from government employment to entrepreneurship. In studies in Lebanon, Turkey, Greece, Pakistan, and India, less than 10 percent of the entrepreneurs were once in the civil service. Frequently, potentially capable entrepreneurs in government service have relatively high salaries, good working conditions, attractive fringe benefits, and tenure. Leaving such a job to enter entrepreneurial activity involves substantial risk.

Empirical studies indicate that an even smaller fraction of industrial entrepreneurs were previously blue-collar workers. Blue-collar workers are most likely to become entrepreneurs because of "push" factors, such as the lack of attractive job options or the threat of persistent unemployment, rather than "pull" factors, such as the prospect of rapidly expanding markets.

Barton H. Hamilton (2000:604–632) examines whether self-employment in entrepreneurial activity pays as well as paid employment. He finds that the present value of income to the median entrepreneur of a long-lasting business is substantially less than that of a paid job with zero tenure. The finding is strengthened when you consider the large proportions of businesses that fail to survive for more than four years in both DCs and LDCs (Nafziger 1968:111–116). Could it be that prospective entrepreneurs face "push" factors of few alternative options or, at the other pole, inflated expectations of "striking it rich"? No, for Hamilton (2000:628), the evidence is consistent with the notion that entrepreneurship offers significant nonmonetary benefits such as "being your own boss." It may be this motive – one that I encountered scores of time among LDC entrepreneurs I interviewed – that is most important in spurring entrepreneurial activity.

Religious and Ethnic Origin

WEBER'S THESIS: THE PROTESTANT ETHIC

Capitalism is an economic system in which private owners of capital and their agents, making decisions based on private profit, hire legally free, but capital-less, workers. Max Weber's *The Protestant Ethic and the Spirit of Capitalism* (1904–05) tried to explain why the continuous and rational development of the capitalist system originated in Western Europe in about the 16th century. Weber noted that European businessmen and skilled laborers were overwhelmingly Protestant and that capitalism was most advanced in Protestant countries, such as England and Holland. He held to the view, discussed in Chapter 3, that Protestant asceticism was expressed in a secular vocation. Although Puritans (or ascetic Protestants) opposed materialism as much as the Roman Catholic Church, they did not disapprove of accumulating wealth. They

did, however, restrict extravagance and conspicuous consumption and frowned on laziness. These attitudes resulted in a high savings rate and continued hard work – both factors favorable to economic progress.

Calvinists (Reformed churches and Presbyterians), Pietists, Methodists, Baptists, Quakers, and Mennonites made up the major ascetic Protestant denominations. The 16th-century French reformer John Calvin taught that those elected by God were to be diligent, thrifty, honest, and prudent, virtues coinciding with the spirit essential for capitalist development.

EVALUATION OF WEBER

The Protestant Reformation and the rise of capitalism, although correlated, need not indicate causation. A third factor – the disruption of the Catholic social system and loss of civil power – may have been partly responsible for both. Alternatively, the Protestant ethic may have changed to accommodate the needs of the rising capitalist class. Another explanation is that the secularization, ethical relativism, and social realism of Protestantism may have been as important as its "this-worldly" asceticism in explaining its contribution to economic development.

Robert Barro and Rachel McCleary's analysis (2003) is broader, examining the role of religion generally in economic growth. Their study of 59 countries finds that growth in real per-capita GDP, 1965–75, 1975–85, and 1985–95, responds positively to religious beliefs, notably those in hell and heaven, but negatively to church attendance, suggesting that growth depends on believing rather than belonging. Their analysis is consistent with Gerhard Lenski's classic study of Detroit, Michigan (1961), which shows that religious belief and commitment were linked to a spirit of capitalism and a humanitarian outlook whereas religious communalism (belonging to or involvement in a socioreligious subculture, such as white Protestantism, Catholicism, Judaism, or African-American Protestantism) fosters a provincial view of the world.

MARGINAL INDIVIDUALS AS ENTREPRENEURS

Despite criticisms, Weber's work has stimulated scholars to ask important questions about how entrepreneurial activity is affected by religious, ethnic, and linguistic communities. One question concerns marginal ethnic and social groups, that is, those whose values differ greatly from the majority of the population. To what extent do **marginal individuals**, because of their ambiguous position, tend to be innovative?

In a confirmation of Weber's study, Hagen (1962) finds that Nonconformists (Quakers, Methodists, Congregationalists, Baptists, Anabaptists, and Unitarians), with only 7 percent of the population, contributed 41 percent of the leading entrepreneurs during the English Industrial Revolution (1760–1830). Other marginal communities disproportionally represented in entrepreneurial activity include Jews in medieval Europe, Huguenots in 17th- and 18th-century France, Old Believers in 19th-century Russia, Indians in East Africa before the 1970s, Chinese in Southeast Asia, Lebanese in West Africa, Marwaris in Calcutta, and Gujaratis in Bombay. Refugees

from the 1947 partition between India and Pakistan, and the exchange of minorities between Turkey and Greece in the 1920s, were overrepresented among industrialists in these four countries. Displaced Armenians, Jews, Europeans, Palestinians, and Arab expatriates, escaping persecution, political hostility, and economic depression, were responsible for the rise in entrepreneurial activity in the Middle East between 1930 and 1955. For migrants, the challenge of a new environment may have a beneficial educational and psychological effect, and the geographical dispersion of friends and relatives may allow the rejection of local values, obligations, and sanctions that impede rational business practice.

In the contemporary world, most dominant communities value economic achievement. Thus, leading business communities include the Protestants of Northern and Western European origin living in the United States, and Hindu high castes in India. In Lebanon in 1959, the politically dominant Maronites and other Christians comprised 80 percent of the innovative entrepreneurs, but only 50 percent of the population. The Yorubas and Igbos, the largest ethnic communities in the more industrialized region of southern Nigeria, are the leading entrepreneurs.

Unlike the preceding groups, aliens have usually not been innovative in industry requiring large fixed investment, which can easily be confiscated. Furthermore, the technical change they introduce is usually not imitated by other groups. The English Nonconformists, Huguenots, Old Believers, Marwaris, Gujaratis, and the south Asian and Mediterranean refugees mentioned previously are not considered alien groups, as their roots have been in their country's culture. Even though there are instances in which aliens have made important contributions to technical change, there is no evidence they are generally more innovative than natives.

Are marginal individuals especially innovative? Because no one has conducted a systematic worldwide test, we simply cannot say.

Social Origins and Mobility

THE UNITED STATES

The dominant American folk hero has been the person who goes from rags to riches through business operations. One of the most celebrated was the steel magnate Andrew Carnegie (1835–1919), an uneducated immigrant, the son of a working man, forced to seek employment at a young age. Through cleverness and hard work, he rose from bobbin boy to messenger to assistant railroad superintendent to industrial leader. For him, "The millionaires who are in active control started as poor boys and were trained in the sternest but most efficient of all schools – poverty" (Carnegie 1902:109). Even so, his story is atypical. The Horatio Alger stories of the 19th century are largely legend. The typical successful industrial leader in the late 19th and early 20th centuries was usually American by birth, English in national origin, urban in early environment, educated through high school, and born and bred in an atmosphere in which business and a relatively high social status were intimately associated with his family life (Miller 1962).

OTHER CAPITALIST AND MIXED ECONOMIES

It should not be surprising that industrialists outside the United States have a similar sociological profile. Innovators during the English Industrial Revolution were primarily sons of men in comfortable circumstances (Hagen 1962). Industrial entrepreneurs from Greece, Nigeria, Pakistan, India, and the Philippines had an occupational and family status substantially higher than the population as a whole. Industrial corporate managers, mostly from families having the funds to pay for a university education, generally have an even higher socioeconomic status than entrepreneurs.

SOCIALIST COUNTRIES

In the Soviet Union in 1936, one of the few studies with reliable information on parental occupational origins, sons of white-collar employees, professionals, or businessowners had six times the representation in industrial, executive positions that the sons of manual workers and farmers had. This situation existed despite the 1917 revolution, which had ostensibly overturned the existing class structure (Granick 1961). Even in China, capitalists, supporting the 1949 revolution that had not been allied to foreign interests, continued (except for the Cultural Revolution, 1966–76) to receive interest on their investments and to be paid fairly high salaries for managing joint public–private enterprises. Members and children of the prerevolutionary Chinese bourgeoisie still hold a large number of positions in industry, administration, and education, despite attacks on their privileges from 1966 through 1976 (Deleyne 1971; Lyons 1987).

ADVANTAGES OF PRIVILEGED BACKGROUNDS

The entrepreneur or manager frequently profits from having some **monopoly advantage**. This advantage (except for inherited talent) is usually the result of greater opportunities, such as (1) access to more economic information than competitors, (2) superior access to training and education, (3) a lower discount of future earnings, (4) larger firm size, and (5) lucrative agreements to restrict entry or output. All five are facilitated by wealth or position (Dobb 1926).

Accordingly in India, high castes, upper classes, and large business families use such monopoly advantages to become industrial entrepreneurs in disproportionate numbers. In one Indian city, 52 percent of these entrepreneurs (in contrast to only 11 percent of blue-collar workers) were from high Hindu castes, which comprise only 26 percent of the total population. A disproportionate share of blue-collar workers (but none of the entrepreneurs), was from low-caste backgrounds (that is, Dalits and Protestant or Roman Catholic Christians). This lopsided distribution of business activity – shown in Table 12-1, which reflects differences in economic opportunities between the privileged and less-privileged portions of the population – is typical of many other countries as well.

Entrepreneurial activity is frequently a means of moving one or two notches up the economic ladder. Research indicates that the socioeconomic status of entrepreneurs is higher than their parents' status, which is substantially higher than that of the general population.

TABLE 12-1. Caste and Religious Community of Entrepreneurs and Workers in an Indian City

Caste/religion	Percentage of entrepreneurs	Percentage of blue-collar workers	Percentage of total population
High Hindu			
Brahmin (priest)	20.4	2.2	21.4
Kshatriya (ruler, warrior)	9.3	8.9	2.3
Vaishya (trader)	22.2	0.0	2.2
Middle Hindu			
Sudra (artisan, peasant)	27.8	57.8	56.9
Low Hindu			
Dalit (outcaste)	0.0	15.5	11.2
Non-Hindu			
Muslim	13.0	6.7	1.3
Christian (high caste)	1.8	0.0	0.1
Christian (low caste)	0.0	8.9	4.5
Sikh, Parsi, other	5.5	0.0	0.1
Total	100.0	100.0	100.0

Source: Nafziger 1978:65.

Education

Most studies indicate a higher level of education among entrepreneurs than for the population as a whole, and a direct relationship between education and the entrepreneur's success. People with more education probably make sounder business decisions; in addition, their verbal skills are better and make acquiring new ideas and methods, corresponding and conversing in business relationships, and understanding instruction manuals and other routine, written information easier. Finally, the educated entrepreneur probably has a sound mathematical background, facilitating computation and recordkeeping.

However, the education of the entrepreneur may be negatively related to success in crafts requiring a lengthy apprenticeship such as weaving, blacksmithing, goldsmithing, shoemaking, and leathermaking. Time and money spent on formal education may represent relinquished opportunities in training more closely related to entrepreneurial activities (Nafziger 1977).[6]

Education may limit entrepreneurship by giving people other occupational choices. Thus, in the early 1960s, when Nigerians were replacing the remaining Britons in the civil service, Nigeria's few university graduates turned to these jobs with their

[6] Nafziger and Terrell (1996:689–696) argue that, in India, firms founded by better educated (usually better connected) entrepreneurs are *less* likely to survive. The explanations are not only the greater opportunities by entrepreneurs in other pursuits but also to the reduction of returns from government connections and other forms of rent seeking during India's economic liberalization.

high salary, security, prestige, and other perquisites rather than to entrepreneurial activity with its relatively low earnings and high risk. By contrast, in areas where university graduates are in excess supply, such as pre-1990 south India, some choose entrepreneurship to avoid unemployment or blue-collar jobs.

Gender

In the United States, there are relatively few women in business – not merely because of sex discrimination (though that plays a part) but because of the whole female socialization pattern in America. Some feminists charge that girls are brought up to aspire to be secretaries, nurses, dancers, and kindergarten teachers rather than to start a business.

In many developing countries, the percentage of female businesspersons is lower than in the United States. Despite certain exceptions, such as the concentrations of female traders in some large open-air market places in West Africa, only a small proportion of large-scale entrepreneurs in LDCs are women.

Most LDCs have cultural norms dictating how males and females should behave at work. Frequently, a woman's physical mobility and social contact are restricted in LDCs. The anthropologist Johanna Lessinger (1980) states that in India women are not allowed to deal directly with strange men, as it is assumed that all unmonitored contact between unrelated men and women must be sexual. Furthermore, according to Lessinger, Indian women are viewed as naturally weaker, more emotional, less socially adept, less rational, and inferior to men. These views have been used not only to limit competition between women and men in business but also, in some instances, to justify a woman's restriction to the household.

Moreover, the culture may view the characteristics of the successful entrepreneur – shrewdness, quick judgment, gregariousness, and force of personality – as inconsistent with those of a good and proper woman. Even where a woman is determined to be an entrepreneur, she is daily reminded that she is going against the norm: Sexual harassment is likely if she steps beyond the bounds of accepted behavior. Although a woman can get around these restrictions by surrounding herself with relatives, neighbors, and other women who can vouch for her good behavior, this strategy is cumbersome for the entrepreneur, who must be mobile. In addition to these social restrictions, bankers and suppliers may refuse the LDC businesswoman credit. In general, despite some slight variations, these attitudes toward female entrepreneurial activity are prevalent in developing countries.

Technological Mobilization and Entrepreneurship in Socialist and Transitional Economies

Chapter 19 will indicate how difficult it was to motivate innovative activity in centrally planned economies such as the Soviet Union. Soviet managers resisted innovation, because resources diverted to technological change usually threatened the rewards for plan fulfillment.

From 1966 to 1970, the early years of the Cultural Revolution, China's leaders took control of industrial innovation and management from the professional managerial elite. Management changed from one person to a "three-in-one" revolutionary committee, consisting of government officials, technicians, and workers. Campaigns urged workers to invent or improve machines, tools, and processes – a policy that began after Soviet technicians took their blueprints and withdrew from unfinished factories in 1960.

According to the Chinese press in the late 1960s, numerous technical activists among the workers, previously unrecognized, introduced new techniques, persevered when criticized by bureaucrats and peers, and received support from the Communist Party. Through its help, they acquired more sophisticated technical advice and frequently received further training and education leading to promotion (Suttmeir 1974). Since the 1978 industrial reforms, professional managers and technicians reasserted their authority and quelled the innovation of technical activists.

Economic reforms began in the late 1970s and early 1980s, including the beginnings of entrepreneurship in the individual economy.

China's **individual economy grew** rapidly as the number of privately self-employed in cities and towns increased about 50-fold from 1978 to 1988. During this period, privately owned and operated proprietorships could initially employ only five outside the family, whereas vertically or horizontally integrated cooperatives and corporations had higher employment limits that varied by locality. In 1984, Wan Runnan persuaded six Academy of Sciences engineering colleagues to join him in borrowing $5,400 and renting a small office to found the Beijing Stone Group Company, which grossed $85.5 million in sales of electronic equipment, earned $6.7 million after taxes, employed 800, and had 15 subsidiaries (including in Japan and Hong Kong) by 1987. The Stone Group controlled ownership and provided technical knowledge for joint ventures with Japan's Mitsui in producing an English–Chinese electronic typewriter, word processors, and printers suitable for China, and software. Chinese law and social sanctions limit annual after-tax income of company President Wan to $8,500, yet, as an entrepreneur, he had independence, prestige, and an income 25 times his academy salary (Harding 1987:124–128; Gould 1985:46–50; Zulin 1987; Ignatius 1988:10).[7]

Starting small enterprises involves many obstacles. Small businesses in Georgia, formerly a Soviet republic, find it difficult to cope not only with high rents, taxes, and fees but also "bribes demanded by the sanitary inspectors, fire inspectors, customs officers, and traffic police, not to mention extortion for organized crime." Starting a business required at least $500 in bribes. Entrepreneurs in this transitional economy said it was essential to have a protector, to have good relations with the police, and to publicize this relationship to protect against unforeseen "accidents" (Dudwick et al. 2003:224).

[7] Wan, who allied with dissident Chinese students and intellectuals, went into exile in June 1989 as a leader of the Chinese Democratic Front opposing the Chinese government, and the government suppressing private enterprise (Goldman 1989:5–9; Ignatius 1989:A1).

Long-Term Property Rights

Perhaps a major barrier to innovation in socialist and some capitalist economies is the lack of secure property rights, discussed in Chapter 4. Are Chinese farmers going to invest and innovate when unsure that their use rights to the land are secure? Past experience suggests an uncertain continuity of a property rights regime, raising questions even about a 99-year lease. However, in 2004, China's national legislature amended the constitution to formally protect private property rights.

In many LDCs, government provides credit and subsidized location in industrial estates for start-up firms. However, the lack of established property rights may limit growth, an example of de Soto's dead capital, unusable under the existing property system and inaccessible as collateral for borrowing (see Chapter 4).

Conclusion

1. The political and cultural milieu in LDCs was generally not conducive to large-scale industrial entrepreneurship before the 1960s or 1970s. Although LDC governments should encourage their entrepreneurs, it is not essential that they be captains of industry as glorified by Schumpeter.
2. To Schumpeter, the entrepreneur is an innovator, one who carries out new combinations. These innovations are the source of private profit and economic growth. However, LDCs need not unduly emphasize developing new combinations, because some technology can be borrowed or adapted from abroad.
3. Coase identifies the entrepreneur, who organizes within the firm, and the price mechanism as the two major coordinating instruments within the economy. The choice between organization within the firm or by the market reflects the transactions costs of using the price system.
4. The entrepreneur differs from the manager of a firm, who runs the business on established lines. The entrepreneur can fill gaps, complete inputs, and make up for market deficiencies.
5. Because they assume that most skills needed for an enterprise can be purchased in the market, Western economists frequently limit the entrepreneurial function to perceiving market opportunities and gaining command over resources. However, LDC entrepreneurs may have to provide some basic skills themselves, such as marketing, purchasing, dealing with government, human relations, supplier relations, customer relations, financial management, production management, and technological management, which are all skills in short supply in the market.
6. Although the family enterprise has the advantage of quick, unified decision making, its disadvantages include a conservative approach to taking risks, reluctance to hire professional managers, and paternalism in labor relationships.
7. McClelland contends that a society with a generally high need for achievement produces energetic entrepreneurs who bring about rapid economic growth. Some training institutions have used achievement motivation training as a part of programs at centers to develop entrepreneurship.

8. Hagen argues that societies where children are raised democratically, so that they are encouraged to take initiative and be self-reliant, are more likely to produce entrepreneurs. However, critics are skeptical about Hagen's claim that this creativity is linked to an earlier period of lost status.
9. Industrial entrepreneurs in LDCs come from a wide variety of occupational backgrounds, including trade, sales, and crafts. Few manufacturing entrepreneurs, however, come from farming, government employment, or factory work.
10. According to Weber, the spirit of the modern capitalist entrepreneur in Western Europe in the 16th century was found disproportionally among Puritans, whose religious asceticism manifested itself in worldly activity. Despite criticism of Weber's thesis, his work has stimulated scholars to ask questions about how differences among religious and ethnic groups affect entrepreneurial activity. One such question, concerning the representation of marginal ethnic and social groups in entrepreneurial activity, has not been satisfactorily answered.
11. Generally, entrepreneurs come from a much higher socioeconomic background than the general population. In addition, they tend to be upwardly mobile.
12. Although education can increase the entrepreneurial supply by making available skills needed for business, it can decrease this supply by increasing a person's job options.
13. Cultural norms in LDCs defining how women should behave at work limit female entrepreneurial activity. (Such problems occur in developed countries as well.)
14. Organization and innovation are important for growth in socialist as well as capitalist economies. It had been difficult for socialist countries, particularly the Soviet Union, to motivate managers and technicians to innovate.
15. Under China's post-1978 industrial reform, self-employed individuals can innovate, start a new enterprise, combine capital and personnel, and, albeit with certain limits, expand the firm. The extent of China's economic reform and protection of private property will help determine how much individual entrepreneurial activity will expand.

TERMS TO REVIEW

- entrepreneurship
- individual economy (China)
- innovation
- marginal individuals
- monopoly advantage
- need for achievement
- state-owned enterprises (SOEs)
- stationary state

QUESTIONS TO DISCUSS

1. What is Schumpeter's theory of economic development? What is the role of the entrepreneur in this theory? How applicable is Schumpeter's concept of the entrepreneur to developing countries?

2. Which steps in the process of developing technical advances are essential for LDCs? Which steps in the process can they skip in full or in part?
3. How valid is Baumol's view that the oligopolistic competition to innovate can explain capitalism's recent "growth miracle"?
4. What is meant by the entrepreneur as gap-filler? Why is this entrepreneurial concept more relevant to LDCs than DCs?
5. What are the functions of the entrepreneur in LDCs? How might these functions differ from those of the entrepreneur in DCs?
6. What are the advantages and disadvantages of family enterprises in LDCs?
7. What are some of the noneconomic factors affecting entrepreneurship in LDCs?
8. What are the socioeconomic factors that affect the supply of industrial entrepreneurs in mixed and capitalist LDCs?
9. Are marginal individuals more innovative than nonmarginal individuals as entrepreneurs?
10. Is the concept of entrepreneurship applicable to socialist economies?

GUIDE TO READINGS

Baumol (2002), like Schumpeter, views innovation as the prime source of economic growth, but unlike Schumpeter, Baumol thinks that oligopolies spur innovative competition. Some major contributions to explanations for the relationship between entrepreneurship and economic development – works by Schumpeter, Knight, Leibenstein, McClelland, and Weber – are available on the Internet (see Nafziger, Internet Assignment, 2006a).

In a newly discovered 1932 article, Schumpeter (2005) emphasized development as fundamentally discontinuous (jerky or leap-like) change, based on novelty, and growth as incremental change.

For Hamilton (2000:604–632), the major incentive to become an entrepreneur, despite its inferior returns to paid employment, is "being your own boss."

The U.N.'s *Journal of Development Planning* no. 18 (1988), edited by Harvey Leibenstein and Dennis Ray, devotes a whole issue to entrepreneurship and economic development, including Ray's "The Role of Entrepreneurship in Economic Development;" Baumol's, "Is Entrepreneurship Always Productive?" Stevenson's, "Women and Economic Development: A Focus on Entrepreneurship;" Nafziger's, "Society and the Entrepreneur;" Kim's, "Entrepreneurship and Innovation in a Rapidly Developing Country;" Kilby's, "Breaking the Entrepreneurial Bottleneck in Late-Developing Countries: Is There a Useful Role for Government?," and several other articles. Kilby (1971:1–40) discusses various perspectives on entrepreneurship, emphasizing the correlation of the theoretical literature from a large number of disciplines with existing empirical literature. In addition, Schumpeter, McClelland, and Hagen summarize their views on entrepreneurship in short articles in the Kilby volume. Arena and Romani (2002:167–183) examine Schumpeter's approach to entrepreneurship.

Kilby (2003:13–29) revisits issues about the entrepreneur. Nafziger (1978:12–23) sketches the concept of the entrepreneur in the history of economic theory and in contemporary economic analysis. Liedholm and Mead (1987) have a survey of the small-scale industry literature in developing countries. Grossman and Helpman (1991) analyze the contribution of innovation to economic growth. Lin, Cai, and Li (2003) concentrate on the role of economic reform and marketization in China's "miracle" growth.

Themes related to entrepreneurship in other parts of the book include: technological innovation and adaptation (p. 372), barriers to entrepreneurship in weak states with pervasive rent seeking (pp. 115–117), the role of the state in spurring entrepreneurship (pp. 61–62, 64–65), the entrepreneur talking advantage of global production networks and shifts in the product cycle (Chapter 17), and group lending for microenterprises for women (pp. 203–204).

13 Natural Resources and the Environment: Toward Sustainable Development

Sustainable Development

The 1987 UN Commission on Environment and Development, chaired by Norwegian Prime Minister Gro Harlem Brundtland, coined the term **sustainable development**, referring to "progress that meets the needs of the present without compromising the ability of future generations to meet their own needs." Sustainability means not only the survival of the human species but also maintaining the productivity of natural, produced, and human assets from generation to generation. In judging whether these assets are sufficient, we need to be aware of the extent to which physical (produced) capital can substitute for natural capital (see Daly's theorem later in this chapter).

This chapter analyzes land, natural resources, and the environment as economic resources in LDCs, and whether development is sustainable, given natural resource depletion and environmental damage. We look at differences among land, natural resources, and capital; assess the effect of changing real oil prices on consumption in the 1970s, 1980s, and 1990s; analyze the adverse impact of Dutch disease in a booming export sector on other sectors; discuss whether abundant resources might be a curse rather than a blessing; examine the effect of poverty on the environment; identify market imperfections that contribute to environmental degradation; examine the change in pollution with economic growth; specify a decision-making rule for abating pollution; indicate how to place a monetary value on pollution discharges; discuss the growth of arid and semiarid lands; examine economic development in tropical climates; analyze policy toward environmental resources, such as biodiversity and climate, that are global public goods; consider the extent to which growth is limited by a scarcity of natural resources; look at measures of economic welfare that consider resource depletion and environmental damage; and examine the ethical dilemmas of rich nations in a world of limited resources and income inequalities.

Importance of Natural Resources

Simon Kuznets (1955:36) wrote that economic growth "is unlikely to be inhibited by an absolute lack of natural resources," as Japan, Switzerland, Singapore, and Israel have grown rapidly despite a paucity of natural resources. Yet Kuwait and the United Arab Emirates have some of the world's highest per-capita incomes, whereas those in Saudi Arabia and Libya are higher than most other LDCs'. Still, incomes and

revenues in these oil exporting states varied widely from 1970 to 2005, following boom and bust cycles similar to those in Texas, Louisiana, Oklahoma, and Alberta.

Land, Natural Resources, and Environmental Resources

Land and **natural resources** are considered nonproducible, because, unlike capital, they cannot be replenished through production. In practice, however, the line between these resources and capital is blurred. Thus, we say land is nonproducible, but in some major port cities, such as Singapore, Mumbai (Bombay), and Boston, where land was scarce, landfills extended overall area. Although only about 11 percent of the earth's land area is cultivated, new arable land is continually created through drainage, irrigation, and the use of fertilizer, new seeds, and new machinery. New techniques and cheap transport have made economical the exploitation of resources that were previously unused.

Land and natural resources, although often lumped together, have highly distinguishable properties. Land is immobile and potentially renewable. Natural resources, by contrast, are mobile, but most are nonrenewable – they cannot be replenished at a rate fast enough to be meaningful in terms of the human life span. Nonrenewable energy sources include petroleum, coal, lignite, peat, natural gas liquids, terrestrial heat flows, oil shale, tar sands, uranium, and thorium.

Resource flows. Renewable energy sources consist of photochemical energy stored in plants and animals (for example, food, wood, animal excrement, and vegetable fuel), and sun, water (including tidal energy), wind, and animal power (Cook 1976:17, 51). Some economists do not like calling them renewable resources, preferring the term resource flows, for even if they cannot be exhausted, they lack regenerative capacity (i.e., humans cannot regenerate these flows). Solar energy may be stored by trees, fossil fuels, or algae, and may be artificially stored by batteries or hot water tanks, but the stock of solar energy is the sun itself; our consumption of solar energy has no effect on the stock or our future consumption.

Environmental resources are resources provided by nature that are indivisible. An ecosystem, an ozone layer, or the lower atmosphere cannot be allocated unit by unit (as you would allocate oil or copper) or consumed directly, but people consume the services these resources provide (Kahn 1995:5).

Petroleum

The importance of physical geographical features can change substantially with technological change. Petroleum, for example, became a significant resource once the internal combustion engine fueled by gasoline became widespread. Moreover, technological change alters the habitability of the world's regions. Air conditioning, dependent on the oil and gas industry, made the southern United States more pleasant to live in the summer, and accounts for much of the substantial population and

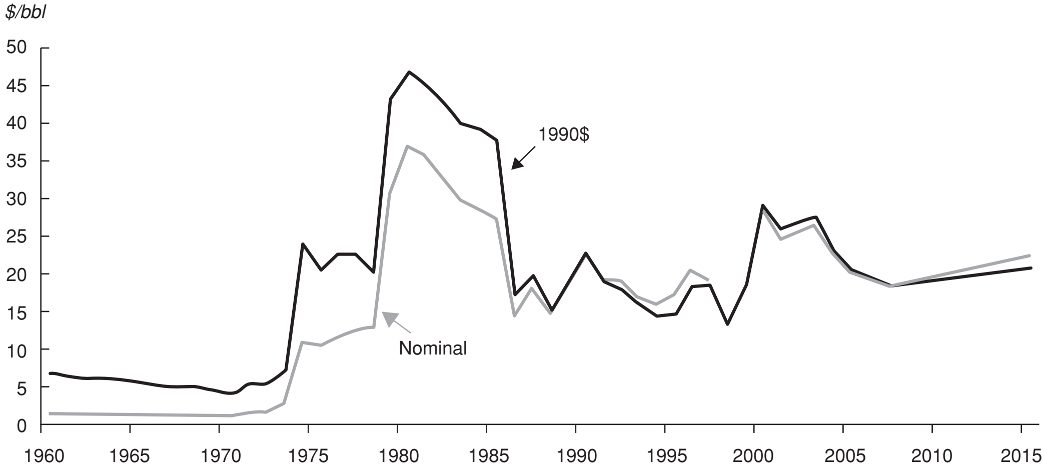


FIGURE 13-1. Petroleum Prices, 1960–2015 (projected). *Source:* World Bank. 2004f:273.

economic growth of Florida, Texas, and southern California during the last 25 years (Firebaugh 2003:180–81).

The fourfold price increase in crude petroleum over four months in 1973 and 1974 sent many LDC economies reeling. The LDC imports of fuels and lubricants (largely petroleum) as a percentage of total merchandise imports more than doubled from 8.0 percent in 1970 to 17.5 percent in 1977. As Nafziger (2006b) shows, the **balance of trade** (merchandise exports minus merchandise imports) for oil-importing LDCs dropped from −$18.0 billion in 1973 to −$72.1 billion in 1980 and −$77.0 billion in 1981, whereas it rose in oil-exporting countries from $18.9 billion in 1973 to $87.1 billion in 1974 to $170.8 billion in 1980. For India, oil import payments as a percentage of export receipts more than doubled from 18.6 percent in 1973 to 38.4 percent in 1974. Yet oil-importing LDCs recovered some from the 1973 to 1974 shock, growing as fast as oil-exporting LDCs from 1973 to 1980.

Nonoil LDCs' balance of trade recovered during the collapse in oil prices in the 1980s, falling to −$9.2 billion in 1986, before turning positive in the late 1980s, whereas oil-exporting countries' positive trade balance dropped throughout the 1980s and early 1990s (except 1990), turning negative in 1994. In 1993–97, oil importers' deficits were more comparable to 1980–1981, before increasing to smaller deficits after 1997. Except for one year, 1997, oil exporting LDCs' trade balance was substantial from 1995 to the beginning years of the 21st century.

Although oil-importing LDCs maintained their growth from the 1970s to 1980s, oil-exporting countries' growth, the major determinant of which is the oil export price (Figure 13-1), declined to a negative rate (Rahimibrougerdi 1988:147–168).[1] Not only in the 1980s but also in the 1990s, oil-importing LDCs had faster growth than oil exporters.

[1] In the United States, real (inflation-adjusted) retail gasoline prices have fallen steadily from 1967 to 2003 (except for the late 1970s and early 1980s) (Hack 2003:D3). Among DCs, U.S. prices are close to the lowest prices in the world.

The Organization of Petroleum Exporting Countries (OPEC) is a **cartel** whose members agree to limit output and fix prices. Although founded in 1960, OPEC achieved its major success through concerted action to increase oil prices in 1973 and 1974. During the 1970s, OPEC countries took over ownership of the oil concessions within their territories, and international oil companies became a combination of contractor and sales agent for these countries.

However, during the 1980s and early 1990s, conservation, the development of alternative energy sources, and a recession among much of the **high-income Organization for Economic Cooperation and Development** (**OECD**) – the United States, Canada, Western Europe, Japan, Australia, and New Zealand – dampened the growth of oil demand.[2] At the same time, the income and commodity terms of trade of oil-exporting LDCs fell, increasing the external debt they owed DCs, their banks, the IMF, and the World Bank and the policy leverage of these institutions, contributing to pressures for OPEC liberalizing and providing improved terms for foreign oil producers. Meanwhile OPEC, with only 78 percent of production in 2002, was finding it more difficult to enforce prices and quotas, as members, such as Iran and Nigeria, that faced mounting debt, political, or military problems, exceeded their quotas or offered discounts below posted prices, and major nonmember producers, such as Russia, China, Mexico, and Norway, increased their production shares.

Saudi Arabia (population 21.4 million), with 25 percent of the world's estimated reserves (Table 13-1) and the lowest cost production, has a dominant role in OPEC pricing. When members violate OPEC agreements, the Saudis can increase production and lower prices, as from 1986 to 1988, threatening to drive high-cost producers out of the market. Still, even the Saudis were hurt by increased government spending and substantial royal perquisites amid negative growth during the 1980s and 1990s, facing major debt problems and political instability in the 1990s and early years of the 21st century. Middle Eastern oil producers account for 65 percent of the world's reserves. Russia, with expansion of oil exploitation with integration into world capitalism, and Iraq, with recovery from the wars and conflict of the 1980s, 1990s, and early years of the 21st century, also should have major influences over cartel pricing. Trying to predict the responses of the Saudis, Russians, Iraqis, and OPEC's weaker members indicates the difficulty of predicting how successful price collusion and future price trends will be.

Energy use depends on both income and price effects (with conservation measures being part of the price impact). The price elasticity of demand for energy increases with response time. Thus, in the first several months of the abrupt 1973 to 1974 oil price increase, the elasticity of demand for energy was close to zero (*growth* in amount demanded decreased little). Over the next seven-year period, price elasticities were about 0.4 percent in DCs and 0.3 percent in LDCs (*growth* in quantity demanded dropped substantially). The full effect of changing energy prices took

[2] In the late 1970s and 1980s, the Environmental Defense Fund, arguing that promoting conservation was cheaper than building new power stations, prodded California's regulators to link Pacific Gas and Electric Company's (PG&E) profits to its energy efficiency. For a time, PG&E's conservation promotion became a model for electrical utilities and their regulators all over the world (Economist 1991:S13–S19).

TABLE 13-1. The World's Leading Crude Oil Countries (by 2003 production and 2003 estimated proved crude oil reserves, billion tons)

Country	Production	2003 Reserves
Saudi Arabia[a]	0.47	36.1
Iran[a]	0.19	18.0
Iraq[a]	0.07	15.5
Kuwait[a]	0.11	13.3
United Arab Emirates[a]	0.12	13.0
Venezuela[a]	0.15	11.2
Russian Federation	0.42	9.5
Libya[a]	0.11	4.7
Nigeria[a]	0.11	4.6
USA	0.34	4.2
China	0.17	3.2
Mexico	0.19	2.3
Canada	0.14	2.3
Qatar[a]	0.04	2.0
Brazil	0.08	1.5
Norway	0.15	1.4
Algeria[a]	0.08	1.4
Kazahkstan	0.05	1.2
Angola	0.04	1.2
Azerbaijan	0.02	1.0
Oman	0.04	0.8
India	0.04	0.7
Indonesia[a]	0.06	0.6
United Kingdom	0.11	0.6
Ecuador	0.02	0.6
Egypt	0.04	0.5
Other	0.34	5.3
Total world	3.70	156.7

The majority of U.S. and Chinese productions is consumed domestically. The U.S.'s 2003 excess demand (consumption less production) of 12.6 million barrels per day surpassed the total excess of the next three nations, Japan, China, and Germany, in rank order. South Korea, France, Italy, India, and Spain also had excess demand greater than one million barrels per day (International Energy Agency 2004:A8).

Proved reserves of oil are "those quantities that geological and engineering information indicates with reasonable certainty can be recovered in the future from known reservoirs under existing economic and operating conditions" (British Petroleum 2004:4).

Because production and reserve figures are used in apportioning OPEC country quotas, many of these figures are likely to be overstated.

[a] OPEC members.

Source: British Petroleum p.l.c. 2004.

place 15–25 years later, when demand elasticities (in response to 1973–74 prices) are twice as high as for the seven-year period (Stobaugh 1979:31–33; World Bank 1981i:36–37).

Dutch Disease

Michael Roemer analyzes **Dutch disease**, named when the booming North Seas' gas export revenues in the 1970s appreciated the guilder, making Dutch industrial exports more costly in foreign currencies and increasing foreign competition and unemployment. Spain's discovery of gold and silver in the New World in the 16th century reduced the expansion of other productive activities. Analogously, the United States suffered from a similar disease from 1980 to 1984, experiencing a farm export crisis and deindustrialization from the decline of traditional U.S. export industries (automobiles, capital goods, high technology, railroad and farm equipment, paint, leather products, cotton fabrics, carpeting, electrical equipment and parts, and basic chemicals) during substantial capital inflows strengthening the dollar.[3] Yet LDCs are less likely to catch Dutch disease from capital inflows than from a major world price increase, a cost-reducing technological change, or a major discovery of a primary resource. The pathology might better be called the Indonesian, Nigerian, Angolan, Mexican, Venezuelan (from petroleum), Thai (rice, rubber, tin), Malaysian (rubber, tin), Brazilian (coffee, sugar), Colombian (coffee), Côte d'Ivoirian (coffee, cocoa, wood), Bangladesh (foreign aid inflows), Egyptian (tourism, remittances, foreign aid inflows), Jordanian (remittances), Zambian, Zairian (copper), or Ghanaian (cocoa) disease, an economic distortion resulting from dependence on one to three booming exports.

Roemer's three-sector model shows that growth in the booming export sector reduces the price of foreign exchange, retarding other sectors' growth by reducing incentives to export other commodities and replace domestic goods for imports and raising factor and input prices for nonbooming sectors. Moreover, labor moves from the lagging export and import substitution sectors to the booming and nontradable sectors. Other ill-effects of the export boom may be relaxed fiscal discipline, increased capital-intensive projects, and wage dualism. Government can minimize the negative effects of Dutch disease by investing in the lagging traded goods sector before the natural resource is exhausted, so that the rest of the economy can capture the potential benefits of the export boom (Roemer 1985:234–252; see also Findlay 1985:218–233; Corden and Neary 1982:825–848).

Resource Curse

Oil booms have proven a blessing for many oil-exporting countries, such as Norway, which invested in other sectors, increasing the sustainability of its welfare state. But

[3] The discussion in Chapter 17 of infant entrepreneurship indicates that Mexico and Argentina suffered from a similar disease, a foreign-investment blitz, in the early 1990s. Chile, however, limited the impact of this illness through taxes on capital inflows, designed to increase the portion of middle-term and long-term investment.

some economists have remarked on the paradox that resource-abundant economies grow slower than other economies (Sachs and Warner 1999:13–38; Lal and Myint 1996; Auty 2002:3–16), labeling this underperformance a "resource curse."

In 1976, Nigeria's head of state, General Olusegun Obasanjo, responding to political unrest and an overheated economy, pointed out that petroleum revenue was not a cure-all. "Though this country has great potential she is not yet a rich nation. . . . Our resources from oil are not enough to satisfy the yearnings, aspirations and genuine needs of our people, development and social services" (Rake 1976:1263; Nafziger 1983:187).

Oil revenues increased average material welfare, widened employment opportunities, and increased policy options. But they also altered incentives, raised expectations, distorted and destabilized nonoil output, frequently in agriculture. Chapter 6 indicated exchange-rate, pricing, investment, and incentive policies that Indonesia undertook, but that Nigeria failed to take, to counter successfully the adverse effects of Dutch disease.

Likewise, during the 1990s, Angola's oil boom contributed to an overvalued currency, shifting production incentives away from agriculture and other exports to nontradable activities including commerce. Angola's agricultural production, hurt by war and currency overvaluation, fell 36 percent from the beginning to the end of the 1990s. Moreover, Dutch disease created a budget trap, as most recurrent expenditures, including the government wage bill, were in local currency, with the fiscal deficit monetized, contributing to runaway inflation (Aguilar 2003:133–134).

The Dutch disease from the oil boom in the 1970s may seem a mild case of influenza for Nigeria, Mexico, and Venezuela compared to **reverse Dutch disease** from the oil bust of the late 1980s and much of the 1990s. For a top Nigerian economic official, striking it rich on oil in the 1970s was "like a man who wins a lottery and builds a castle. He can't maintain it, and then has to borrow to move out" (Lewis 1988:7).[4] Dependence on one or two exports makes these countries especially vulnerable to external price shocks.

Is the resource curse valid? Do resource-abundant economies fail to reinvest their rents productively and divert resources away from innovative sectors (Barbier 2003:253–272)? Lal and Myint (1996:214–215) find that resource-abundant countries are more likely to suffer a growth collapse than other countries. They attribute this collapse to higher wages from primary product exports obstructing industrialization. Auty (2001:317–318) thinks that resource-poor countries are more likely to start earlier on competitive industrialization, undertaking needed structural change.

Eric Neumayer (2003) finds that the resource curse is substantially less if you measure gross national income accurately. The net savings component of GNI requires that you subtract capital depreciation, natural resource depletion, and damage from carbon dioxide and particulate emissions from national savings, as the World Bank does (see Figure 4-2). Neumayer then surmises that the "curse" is partly a result of

[4] See Evans (1986:10–13) on reverse Dutch disease from depressed primary product prices.

unsustainable overconsumption in resource-abundant economies.[5] Indeed, he agrees that Nigeria was living beyond its means during its oil boom.

Finally, an abundance of exportable minerals and other resources is more likely to be associated with poor governance or even a failed state. These resources enabled warlords or predatory rulers (Liberia's Charles Taylor and Zaire's Mobutu Sese Seko) to support private armies without providing public services. Indeed, predatory economic behavior is possible in resource-abundant economies but less viable in resource-poor Tanzania, whose resources are too limited for extensive rent seeking (Nafziger and Auvinen 2003).

Poverty and Environmental Stress

Grinding poverty and impatience may spur people to strive for immediate gain, forgetting long-term sustainability, especially when property or use rights are unclear. To survive, impoverished people degrade and destroy their immediate environment, cutting down forests for fuelwood and export earnings, overusing marginal agricultural land, migrating to shrinking areas of vacant land, and destroying habitat for biological species essential for pharmaceuticals and seed varieties (Norgaard 1992:38–40; U.N. World Commission on Environment and Development 1987:28). Additionally, they forego maintenance of vegetation, forests, and the biosphere. At subsistence levels of living, when peoples' survival is at stake, hand-to-mouth economics prevail in which the future is infinitely discounted; people overexploit natural resources and underinvest in conservation and regeneration, leading to resource depletion and species loss. In this economic climate, people make irreversible decisions, foreclosing options by logging and mining of rain forests and other economic options that reduce species (Panayotou 1993:46–54; Flavin 1989). More than 100 million people in LDCs experience acute firewood shortages. In the late 1980s, a study of Nepalese hill villages with severe deforestation indicated one-quarter of the household labor normally devoted to agriculture was diverted to fuelwood collection (Mink 1993: 8–9).

The World Bank (1992i:4) lists the following adverse effect of environmental degradation on health and productivity: (1) water pollution contributes to more than two million deaths and billions of illnesses a year; water scarcity results in poor household hygiene, added health risks, and limits on economic activity; and water pollution and scarcity leads to declining fisheries, increased municipal and rural household costs of providing safe water, and aquifer depletion, which leads to irreversible compaction; (2) excessive urban particulate matter is responsible for 300 to 700 thousand premature deaths annually and for half of childhood chronic coughing; smoky indoor air affects 400 to 700 million people, mainly women and children in poor rural areas;

[5] A study by The World Bank ("Striking It Poor: Oil as a Curse," *World Bank Development News*, June 9, 2003) reconfirms the association of the curse with over-consumption and excessive military spending. The result is that the Bank, in lending to Chad for an oil pipeline, conditioned the loan on Chad adopting "anticorruption laws and promis[ing] to spend most of its oil money on projects like health care and rural development" rather than military spending.

and air pollution has many acute and chronic health impacts, it restricts vehicle and industrial activity during critical episodes, and affects forests and water bodies through acid rain; (3) solid and hazardous wastes acutely increase health risks locally, such as diseases spread by rotting garbage and blocked drains; and groundwater resources are polluted; (4) soil degradation reduces nutrition for poor farmers on depleted soils and increases susceptibility to drought, whereas decreasing field productivity in tropical soils contributes to offsite siltation of reservoirs, river-transport channels, and other hydrological investments; (5) deforestation leads to localized flooding, contributes to death and disease, and also leads to the loss of sustainable logging potential, erosion prevention, watershed stability, and carbon sequestration[6] provided by forests; (6) reduced biodiversity contributes to loss of new drugs and genetic resources, and reduced ecosystem adaptability; and (7) atmospheric changes, which shift vector-borne diseases, increase risks from climatic natural diseases, and increase diseases from ozone depletion (estimated to contribute to as much as 300 thousand additional cases of skin cancer and 1.7 million cases of cataracts a year worldwide).

Poverty and insecurity contribute to lack of capital and labor to conserve the environment. Poor, landless people are forced to cultivate marginal lands, lacking other alternatives. Low-income countries will pay little, if any, to avoid climatic and biological resources degradation.

Grassroots Environmental Action

The transition to sustainable development generally requires local participation in managing resources. The U.N. Research Institute for Social Development (UNRISD) researchers Dharam Ghai and Jessica M. Vivian (1992) contend that low-income local people operating small-scale schemes based on longstanding knowledge of the soil and terrain usually resist large-scale commercialization (dams, irrigation projects, fishing trawlers, timber) by government or firms that fail to consult local people or bear the costs of degradation. Grassroots action in defense of the environment, especially in democracies such as India, can have a significant impact, even in the face of opposition of entrenched interest groups whose profits lie in overexploiting resources. Local people who are not just defending the "environment" in the abstract but their livelihood and their way of life are difficult for ruling elites to quell.

How do we reconcile UNRISD findings with those of the U.N. (Brundtland) Commission? Robin Broad, who conducted fieldwork in rural communities across the Philippines, argues that the poor who live in a stable ecosystem, with secure long-term user rights, will behave responsibly toward the environment. However, when events and institutions transform poor people "into marginal people living in vulnerable and fragile ecosystems," they will destroy and degrade their environment (Broad 1994:811–822).

[6] See Regalado and Ball (2004:A1) on the potential of the technology of carbon sequestration to reduce carbon dioxide concentrations.

Market Imperfections and Policy Failures as Determinants of Environmental Degradation

Theodore Panayotou (1993) argues that environmental degradation originates from market distortions, defective economic policies, and inadequate property rights definitions, that is, that environmental problems are, at heart, economic problems. Market and policy failures mean a disassociation of scarcity and prices, benefits and costs, rights and responsibilities, and actions and consequences. People maximize profits by shifting costs onto others and appropriate common and public property resources without compensation. Market failures are institutional failures partly attributable to the nature of certain resources and partly to the failure of the government to establish fundamental conditions for efficient markets and use instruments (taxes, regulations, public investment, and macroeconomic policies) to bring costs and benefits that institutions fail to internalize into the domain of the market. Policy failures are cases of misguided government intervention in fairly well functioning markets or unsuccessful attempts to mitigate market failure which results in worse outcomes. However, society's goals cannot be eliminating environmental deterioration altogether but, rather, accounting for all costs from diminished quantity and quality and lost diversity of natural resources, considering the productivity and sustainability of alternative resource uses, and insisting that environmental costs are borne by those who generate them. Growth must be derived from increased efficiency and innovation rather than by shifting environmental costs onto others.

Following are six market imperfections that contribute to environmental degradation.

(1) Externalities. Externalities refer to economic activities conveying direct and unintended costs and benefits to other individuals and firms. The concept of external economies, discussed in Chapters 5 and 11, also includes negative externalities or **external diseconomies**. These diseconomies include air pollution (from steel plants and automobile exhausts), water pollution, and depletion of fisheries by overfishing.

You can trace almost all resource problems to discrepancies between the private and social valuation of resources. In general, overexploitation, inefficient use, inadequate conservation, and the lack of investment in the regeneration of natural resources arise from the failure of either the market or government to price resources according to social scarcity.

Government should identify spillovers (externalities) ignored in calculating private benefit–cost or user costs over time (where current resource use affects the future resource available), and internalize these costs or charge them to the current consumers and producers through taxation or modifying prices (rather than future generations or innocent bystanders from the present generation). Examples include the state levying taxes on polluters or charging a surcharge for pesticide use (Panayotou 1993:39–45). Government here has a more active role than when operating under Coase's theorem (Box 13-1).

BOX 13-1. COASE'S THEOREM

Coase's theorem states that when property rights are well defined and legally enforceable, and transactions (transfer and enforcement) costs are not prohibitive, participants will organize their transactions voluntarily to achieve efficient (mutually advantageous) outcomes. Environmental protection benefits those wanting clean air (John Q. Public) and costs the polluter (Hackett 1998:201). If the benefits of clean air exceed its costs, then an efficient outcome would be for John Q to pay the polluter, or vice versa. To minimize price distortion, it does not matter which party has a property right to use of the air. Both John Q and the polluters are better off without government intervention (Coase 1993:109–138; Glaeser, Johnson, and Shleifer 2001:853; Hackett 1998:101–104). But the Coasian approach faces difficulties with complex issues such as global warming.

Coasian contracting operates well, given the restrictive assumptions above. Transaction and negotiation costs are additional problems. Another problem is free riding by third parties. In both free rider and tragedy of the commons problems, individual incentives based on self-interest are not consistent with group optimum (Hackett 1998:104).

Furthermore, although the Coasian approach might work well between small numbers (for example, a cattle rancher bargaining with a wheat farmer about payment for a fence), it works less well with large numbers, especially on the buying side (ibid.).

Panayotou (1993) and other mainstream economists stress the idea that people should pay for costs they shift to others, but, unlike Coase, they see an essential role for the state in allaying market failure. A view similar to Coase tends to be skeptical about government regulation. One reason is the cost of coordination, bargaining, monitoring, and contract enforcement. Another reason is a preference for being free of state action.

(2) Common property resources. The biologist Garrett Hardin's (1968:1244–1245) "**tragedy of the commons**" implies that just as the herder's cattle eventually overgraze a pasture open to all, so do businesses and individuals overpollute atmosphere and overuse biosphere free for all to use.[7] Individuals exploit an unpaid or open access resource as if they were facing an infinite discount rate. Indeed, having large families, although harmful to society, is optimal for a couple exploiting the commons. Families, factories, fishers, and herders that generate environmental costs should bear the costs they convey to others through the degradation of air, water, and pastures.

During the last quarter of the 20th century, West Africa, facing foreign exchange shortages, has exported substantial amounts of timber. Additionally, tens of thousands of West Africans cut down timber to mitigate acute firewood shortages. West Africa's rate of tropical deforestation during the 1980s was 0.8 percent yearly; by 1997, few of these forests remained (Tham 1992:25–37; World Bank 1992i:6; Panayotou 1994:151–152).

[7] Peirson (1994:218) points out that free open access to grazing land need not necessarily destroy the usefulness of land. Overgrazing depends on the private costs of raising cattle, their market value, and the ability of the land to support large numbers of cattle.

In Haiti, violence, displacement, erosion, and poverty interact, producing a protracted social and political crisis. The lack of well-defined property and use rights contributes to falling rural per-capita income. Population growth leads to erosion through an increasing demand for fuel. For the poor there is no substitute for wood and charcoal; their use has led to massive deforestation (Lundahl 2000:333–364). The farmer Didier Dipera says: "There are no trees to hold the land and when it rains the earth washes away" into the river and down to the sea (Weiner 2004). The accelerating erosion process had contributed to a long-term decline in agriculture's productive capacity, and has provided a powerful incentive for rural–urban migration, increasing population pressure and political discontent further (Lundahl 2000:333–364).

From time immemorial, however, cultures have discovered the dangers of common-property tenure and have developed property rights, sometimes group tenure or coordination of hunting and gathering, to protect their resources. In the evolution of humankind, only those cultures survived that developed institutions to limit common-property resource use (Gordon 1993:97–108).

Esther Boserup (1965) emphasizes how population growth affects the evolution of land rights when land is no longer abundant. Rising land value and scarcity necessitate regulating land use. Frequently, land rights that had been open access were individualized, with well-defined users (Munoz-Pina, Janvry, and Sadoulet 2003:129).

(3) Public goods. Many environmental resources are public goods, which are characterized by nonrivalry and nonexclusion in consumption. Nonrivalry means that one individual's consumption of the good (lighthouses, biodiversity of species, oceans) does not diminish the amount of good available for others to consume. Nonexclusion means that if one person is able to consume the good (the atmosphere, flood protection, national defense, and police fire protection), then others cannot be excluded from consuming it (Kahn 1995:18).

(4) Irreversibility. Many environmental and natural resource goods cannot be reproduced in the future if we fail to preserve them now. The market makes inadequate provision for the future of a rare phenomena of nature (the Grand Canyon), a threatened species (the elephant), or an ecosystem (the tropical rain forest) essential for the survival of a species. We should place a high value on retaining options to use goods or services that would be difficult or impossible to replace and for which there are no close substitutes (Krutilla 1993:188–198). Logging or mining of the tropical rain forest, the habitat for about half of the world's biological species, destroys the species that are essential for the pharmaceuticals and seed varieties that humankind needs in the future.

(5) Undefined user rights. People will not pay for or conserve a resource without the assurance of secure and exclusive rights over it. The overuse of common property resources ensues from legally unclear ownership and user rights to an asset. In Thailand, subsistence farmers, without long-term tenure rights, "mined" the soil

because they lacked incentives for more sustainable practices. In Pakistan's Indus River basin (Chapter 7) and California's valleys, the delivery of water from large public irrigation projects to farmers at low, subsidized costs results in its wasteful use. Pakistan's large, influential farmers get access to water at the expense of the rights of small farmers because user (or ownership) rights to water are not explicitly defined in terms of prices, quantities to be used, and rights of upstream and downstream users. The use of water at one point along an irrigation channel affects its uses at other points, that is, one use has an opportunity cost in terms of other uses given up (Brown, Flavin, and Postel 1991:87; Dales 1993:225–240; Panayotou 1993:35–38, 67–70). The earth's major source of freshwater is groundwater, which is depleting or becoming contaminated in India, Pakistan, Bangladish, China, the Middle East, and much of the western United States, because of poor management, unclear use rights, and underpricing (Postel 1999:30–38). The similar underpricing of rights to discharge pollutants into the atmosphere, rights that can be efficiently allocated through transferable emissions permits, is discussed later.

(6) High transactions costs. Transactions costs are the costs of information, coordination, bargaining, monitoring, and enforcement of contracts. If setup costs are high, markets based on voluntary agreement and exchange fail to emerge. The costs of parceling out the sea to individual fishers and enforcing property rights over a mobile resource, such as water, may be prohibitively high. Moreover, when millions of people burn carbon-based fuels whose pollution, which migrates across borders, affect millions of victims, the costs of negotiations among the many parties involved are going to be significant (Panayotou 1993:34, 43–44; Kahn 1995:46).

Panayotou (1993:8–23) lists the following economic manifestations of environmental degradation and the corresponding solutions to the environmental problems:

Economic manifestations of environmental degradation	/	Solutions to environmental problems
(1) overuse, waste, and inefficiency coexisting with growing resource scarcity and shortages, as in Thailand, Indonesia, Philippines, India, and Pakistan	/	eliminate market distortions that spur overuse of common property resources
(2) an increasingly scarce resource put to inferior, low-return, and unsustainable uses, when superior, high-return, and sustainable uses exist (for example, Brazil's conversion of valuable forests in the Amazon to ranches, reducing soil fertility)	/	eliminate perverse fiscal incentives offered by the Brazilian government
(3) exploitation of a renewable resource capable of sustainable management as an extractive resource (such as tropical	/	cease underpricing or oversubsidizing the resource (such as water and ranch land)

(continued)

Economic manifestations of environmental degradation	Solutions to environmental problems
forests mined without concern for regeneration and future harvests)	
(4) a resource put to single use when multiple uses would generate a larger benefit (as illustrated by a tropical forest that could be used for fruits, latex, water and soil conservation, and biological diversity rather than just timber)	eliminate price distortions through subsidies or net underpricing
(5) investments in the protection and enhancement of the resource base (through reducing erosion and improving irrigation) are not undertaken even though they would generate a positive net present value by increasing productivity and enhancing sustainability	government taxes and subsidizes to make internal and social profitability coincide
(6) a larger amount of effort and cost is incurred when a smaller amount of effort and cost would have generated a higher level of output and profit and less damage to the resource (fisheries and common pastures)	government fees to reduce common-property and open-access resources, which lead to overuse
(7) local communities, tribal and indigenous groups, and women are displaced and deprived of customary rights of access to resources, although because of their specialized knowledge and self-interest, they are most cost-effective managers of the resource	prevent central government from assuming ownership and management of tropical forests and other common-property resources
(8) public projects are undertaken that do not generate benefits to compensate all affected (including the environment) sufficiently to make them decidedly better off with that project than without it (for example, future generations are not fully compensated)	government needs to (a) create green markets to make people bear the costs they transmit to others and to encompass the needs of the future, and (b) prevent state ownership from contributing to the "tragedy of the commons"
(9) resources and byproducts are not recycled, even when recycling would generate both economic and environmental benefits	government should embody the disposal price in the price the consumer pays, and should charge for unrecycled waste
(10) unique sites and habitats are lost and animal and plant species go extinct without compelling economic reasons	provide market signals so that species of such value that their irreversible loss cannot be justified would be properly evaluated

Pollution

As argued earlier, pollution problems result from divergences between social and commercial costs, divergences arising under both capitalism and socialism. In the late 1980s, more than half the rivers of socialist Poland were too polluted even for industrial use. Stalinism and subsequent state management in the Soviet Union meant cheaply priced resources and ruthless treatment of land, air, and water. Indeed, the former Soviet Union best illustrates the "tragedy of the commons," in which everybody's property is nobody's property. Worldwatch researchers Lester R. Brown, Christopher Flavin, and Sandra Postel (1991:26–27) contend that the world's worst water quality is in the former Soviet Union's Aral Sea basin. The accumulation of agricultural pesticides in local water supplies has caused birth defects, miscarriages, kidney damage, and cancer. According to Murray Feshbach and Alfred Friendly, in *Ecocide in the USSR* (1991:x, 1–25), these pesticides and defoliants have so contaminated the rivers feeding the Aral Sea that mothers in the region who breast-feed their babies run the risk of poisoning them. Furthermore, three-quarters of the former Soviet Union's surface water was unfit to drink and one-third of the underground water sources were contaminated. Nuclear accidents at Chernobyl and Kyshtym spread radioactive fallout over large hectares of agricultural land and killed thousands of people (see Chapter 19 on the former Soviet Union's reduced life expectancy). Feshbach and Friendly argue that air, land, and water were systematically poisoned, which also meant a substantial loss of diverse species, another legacy the former Soviet Union still lives with.

Hardin's tragedy takes something – trees, grass, or fish – out of the commons. The reverse of the tragedy of the commons is pollution, which puts chemical, radioactive, or heat wastes or sewage into the water, and noxious and dangerous fumes into the air. For the firm, the cost of discharging wastes is much less than purifying wastes before releasing it. Without a clear definition of ownership and user rights and responsibilities, an economy "fouls its own nest" (Hardin 1968:1244–1245).

Production and consumption create leftovers or residuals that are emitted into the air or water or disposed of on land. Pollution of air and water is excessive not in an absolute sense but relative to the capacity of them to assimilate emissions and to the objectives of society. Thus, under frontier conditions, with little population density, pollution may not be a problem. As population density becomes more salient, a country can charge a high enough price for use of a resource to limit effluents to a level that can be assimilated without damage to capacity (Panayotou 1993:7; Field 1994:24). Urban air pollution is a major form of environmental degradation. The megacities of the world, urban areas with more than 10 million people, lie under clouds of industrial and vehicular pollution, generated primarily by fossil fuels. This pollution in densely populated areas is often visible, obviously human-made, and poses immediate health risks to people living in the vicinity. The amount of this air pollution depends on pollution reduction efforts, choice of fuels, available technologies, topography, weather, and climate. The most serious health problems result from exposure to suspended particulate matter (SPM), consisting of small, separate particles from sooty smoke or gaseous pollutants. Health consequences

include a high incidence of respiratory diseases such as coughs, asthma, bronchitis, and emphysema, and increased death rates among children, elderly, and the weak. Particulates, especially the finer ones, can carry heavy metals, many of which are poisonous or carcinogenic, into the deeper, more sensitive parts of the lungs. Sooty smoke from incomplete fuel combustion and vehicle exhaust, especially from diesel engines, are anthroprogenic sources of SPM. Liquid SPM contribute to the damage of buildings, habitat, and fish, as well as humans. Enterprises and vehicle owners can reduce particulate emissions by installing control equipment, such as dust removal equipment in coal-fired utilities, or by switching to fuels other than coal (World Resources Institute, U.N. Environment Program, and U.N. Development Program 1994:197; Grossman 1995:19–50).

The finer, more hazardous SPM and (probably) airborne lead increase with GDP per capita until you get to the levels of middle-income countries, and decrease beyond these levels. Sulphur dioxide (SO_2) has a similar relationship to country income, except it begins to decline with lower-middle-income countries. Sulphur dioxide is emitted with the burning of fossil fields from automobile exhausts, nonferrous ore smelting, and petroleum refining. More than 600 million people, including those in major cities such as Beijing, Mexico City, and Seoul, live in urban areas where SO_2 levels exceed World Health Organization guidelines. The downturn in SPM, airborne lead, and SO_2 levels is not a result of changes in output composition but of tighter government restrictions such as the installation of control equipment, the switching to fuels other than coal, and limits on lead additives to gasoline (World Resources Institute, U.N. Environment Program, and U.N. Development Program 1994:198; Grossman 1995:27–35).

The major forms of freshwater pollution are pathogens (disease agents, usually microorganisms) in raw sewage, industrial and agricultural contaminants from heavy metals and synthetic organic compounds in drinking water and aquatic organisms, and excessive nutrients in sewage, agricultural runoff, and industrial discharge. In India, 114 towns dump their human waste and untreated sewage directly into the Ganges, so this holy river is among the most polluted in the world. Almost two billion people in developing countries drink contaminated water, the primary cause of the death of children. LDCs discharge more than 90 percent of their urban sewage without adequate treatment. Waterborne pathogens from human and animal feces can cause gastroenteritis, typhoid, dysentery, cholera, hepatitis, amoebic dysentery, schistosomiasis, and giardiasis, which are responsible for a substantial fraction of LDC deaths each year. Fecal contaminants rise with GDP per capita (and industrialization and urbanization) until a country reaches upper-middle- or high-income status, after which these contaminants drop sharply, largely as a result of investments in water and sewage treatment. The relationship among heavy metals, toxic chemicals, and excess nutrients in rivers and income is mixed, although lead, cadmium, and nickel concentrations generally fall with income (Gore 1993:110; Grossman 1995:35–45).

Policy makers need to consider alternative costs of using scarce resources and costs of the damage to the productivity of resource as waste disposal increases beyond a certain threshold. Moreover, prevention is often more cost-effective than rehabilitation, and some environmental costs are irreversible (Panayotou 1993:7).

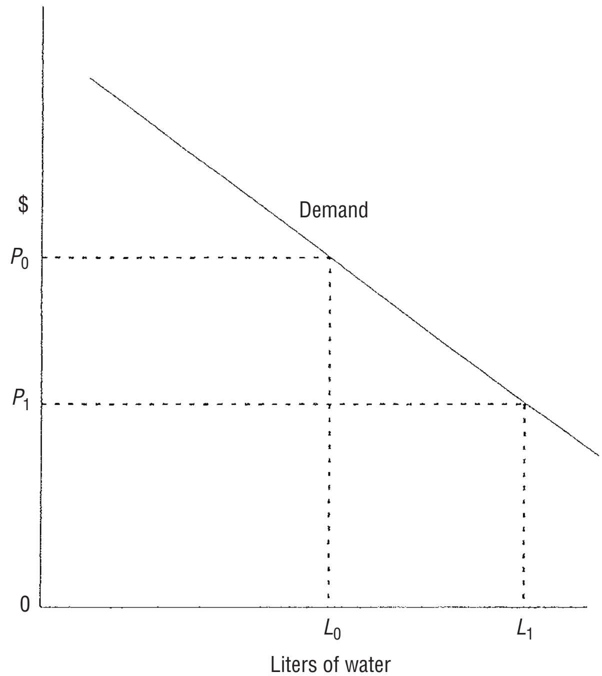


FIGURE 13-2. A Water Shortage Caused by a Low Price.

Consider a resource flow, based on periodic rain and snow, year after year, the basis for a river, which flows down from the mountains, through farms, to a city. State authorities do not face a problem of resource allocation, as long as the river flow exceeds withdrawals of water for use, and the water is not contaminated. However, once water is scarce and users face excess demand, the water authority needs to charge a price and define user rights to the water. Take Figure 13-2, which shows a demand curve for a fixed supply of water (L_0) available at zero cost. Here the price where the quantity demanded is equal to the fixed quantity supplied is P_0. However, if government only charges a price P_1, then the quantity demanded is L_1, and the water shortage is L_0L_1 (Kahn 1995:375–378). This is a frequent problem, as illustrated by irrigation water in Pakistan and southern California, where farmers waste water sold to them at a subsidized price.

No policy maker wants to pay the staggering costs often essential to restore waste sites to pristine conditions. Instead, policy makers try to attain an optimal environmental quality, which considers the tradeoff between the damage that people suffer from pollution and the cost of reducing emission in terms of the resources that could have been used in other ways.

Figure 13-3 shows a **marginal damage (MD) function**, upward sloping to the right, which indicates the change in dollar (or other domestic currency) cost resulting from a unit change in pollution emissions, measured here in tons per year, but sometimes measured as ambient concentration, such as parts per million. Air pollution damages human health, degrades materials and buildings, worsens the visual environment, and disrupts or destroys nonhuman ecosystems, including crops, animals, insects, and genetic stock.

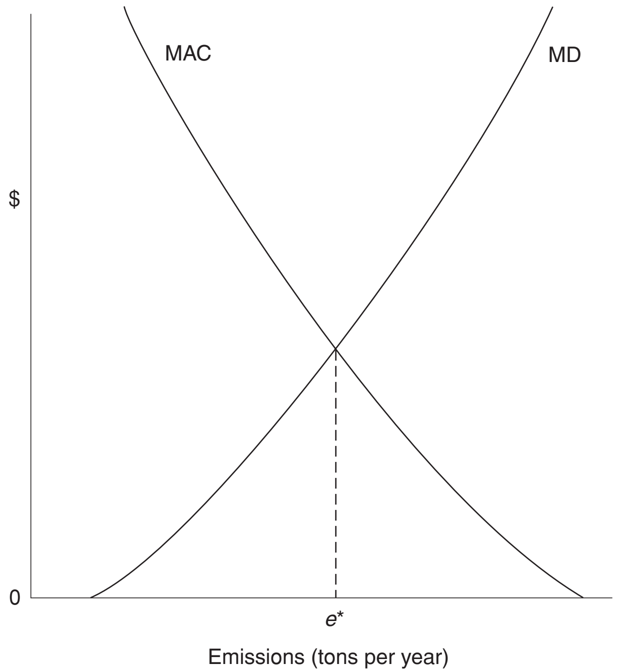


FIGURE 13-3. The Efficient Level of Pollution Emissions.

How do we measure dollar cost? Let's look only at the damage to peoples' health. The most obvious cost is excess illness or death from diseases such as lung cancer, chronic bronchitis, emphysema, and asthma from elevated levels of pollutants, such as sulfur dioxide, asbestos fibers, and radon emissions (Field 1994:86–88). We can calculate the (discounted) cost of extra days lost from deaths and illnesses (person-days of work lost times the daily output foregone, usually estimated by the daily wage), medical expense, and nonpecuniary costs, such as pain and suffering.

Figure 13-3 also shows abatement costs, the costs of reducing pollution emissions into the environment. The **marginal abatement cost (MAC) function**, upward sloping to the left, indicates the change in dollar cost to change pollution emissions by one unit (for example, one ton per year). Abatement is defined widely to include all ways of reducing emission, including changing production technology, switching inputs, recycling residuals, treating wastes, abandoning a site, and so forth. Where the MAC curve intersects the horizontal axis is the uncontrolled pollution emission level, where nothing is abated. As the curve slopes upward to the left from zero MAC, the marginal (or extra) cost of the first units of emission reduction is relatively low. Think of a steel plant. The firm might attain the first small reduction in pollution by putting a screen or filter on the smokestack. But as pollution levels fall further, the marginal cost of achieving additional reductions increases. For example, a 30–40 percent reduction in emissions might require investment in new technology to reduce effluents. Reducing emissions 60–70 percent might require new treatment technology in addition to all previous steps taken. A 90-percent reduction might require costly equipment for recycling virtually all pollution emitted in the plant. The extreme option for a single

plant is to cease operations, thereby achieving zero emissions. Thus, the larger the reduction in emissions, the greater the marginal cost of producing further reductions (Field 1994:90–93).

The efficient level of pollution emission or minimal social cost is where marginal damages are equal to marginal abatement costs (that is, where emissions are e^*). Why? Emissions higher than e^* expose society to additional damages whose costs are in excess of abatement costs reduce (MD > MAC). Emissions lower than e^* mean that society incurs extra abatement costs in excess of foregone damage (MAC > MD).

The government needs to enforce and administer emission regulations, and firms need to keep records of abatement costs and emission reductions. To analyze minimal costs from society's viewpoint, you should include transactions costs, such as enforcement and administrative costs, in the marginal abatement cost function; the result is that the efficient level of emissions increases (or moves to the right) (Field 1994:93–100).

To achieve minimal social cost (MAC = MD), the government's pollution control board might charge individuals (such as automobile consumers) or firms a price that approximates the marginal social cost or damage of pollution. Once prices are set for sources and amounts of pollution, the polluter can adjust in any way it pleases, either by finding the cheapest means of reducing or eliminating pollutions, or paying fines. Using a market system to charge for pollution spurs private firms to make socially efficient decisions (Ruff 1993:20–36).

Contingent Valuation

The ability to place a monetary value on pollution discharges or other forms of ecological degradation is a cornerstone of the economic approach to the environment (Hanemann 1994:19–43). But a damage function relating the cost to the amount of, say, pollution emissions, although conceptually straightforward, is often difficult to measure.

Contingent valuation – some suggest hypothetical valuation is more accurate – uses questionnaires from sample surveys to elicit the willingness of respondents to pay for a hypothetical program, such as a public good (for example, the environment). Economists can use interviews to simulate a market to determine how much people would pay for additional quantities of a public good. Values revealed by survey respondents may allow economists to draw a market demand schedule (Portney 1994:3–17).

But it would not work to approach people at a mall in São Paulo, Brazil, ask them to drop their shopping bags, and inquire about how much they are willing to pay to preserve the tropical rain forest in the Amazon River basin or a penguin in the Antarctica. W. Michael Hanemann argues that people are more willing to tell you whether they would pay some particular amount in increased taxes than to specify the maximum amount they or society generally should pay for the program. A self-contained referendum is preferable. The enumerator should ask the Brazilian

voter a concrete question such as: "If it costs you $10 taxes annually for the next twenty years for a program that will preserve 50 million hectares (124 million acres) of the Amazon River basin rain forest, would you vote for it?" The survey should use different dollar amounts for different respondents so as to trace a demand schedule that indicates willingness to pay at various prices (Hanemann 1994:22–24).

Economists have some objections to the contingent valuation method. Answering survey questions requires effort, so that some people become impatient, uninterested, or tired. Different people perceive the same questions differently, and the choice of words is so important in conveying meaning. People may respond by making up answers rather than evincing true economic preferences, whatever these may be.

How important is scope? Do people respond the same when you ask about preserving one rain forest or two rain forests, or one rain forest, then another rain forest? Peter A. Diamond and Jerry A. Hausman (1994:45–64) argue that contingent valuation surveys do not measure the preferences they attempt to measure. For example, the sequence in which a question is asked helps determine the answer: People asked a first question to pay to preserve the visibility at the Grand Canyon were willing to pay more than those asked the third question about the canyon. How much people were willing to pay to save the seal depended on the sequence of questions about seal and whale preservation. People's stated willingness to pay does not aggregate. Thus, people are willing to pay more to preserve three wildernesses separately than the three together. Diamond and Hausman conclude that contingent valuation is deeply flawed. At a minimum, contingent valuation surveys need to be pretested so that the questions are as precise as possible. Even with careful preparation, the contingent valuation method can only find an approximate value for what is invariably difficult to measure precisely. The more you rely on measurable costs (for example, medical costs plus wages foregone for a certain number of person-years lost from air pollution), the more confidence you will have in your valuation (Hanemann 1994:27–28, 34–36).

Arid and Semiarid Lands

A desert is a region supporting little vegetation because of insufficient rainfall (less than 25 centimeters or 10 inches of rain annually) and dry soil. About 23 percent of the earth's land area is desert, or **arid land**, and an additional 20 percent is semiarid. In 2005, about 14 percent of the world population (910 million people) lived in arid or semiarid lands. According to U.N. estimates, about 100 million people live on almost useless lands – lands damaged by erosion, dune formation, vegetational change, and salt encrustation. Perhaps 60 million of these 100 million people, because of their dependence on agriculture, face the gradual loss of their livelihoods as fields and pastures turn into wastelands.

LDCs risk large amounts of nondesert land being turned into desert. When you disturb imperiled ecological systems with increased human activity, you can disrupt infiltration of rainwater, increase surface runoff, lower groundwater levels, dry up

surface water, and lose topsoil and soil nutrients, perhaps contributing to hunger and even famine (U.N. 1990:87–88).

In the last half-century, particularly since the late 1960s, the Sahara Desert has expanded southward into the areas of the African Sahel (parts of Mauritania, Senegal, Mali, Burkina Faso, Niger and Chad). Such encroachment in Africa, as well as in the Middle East, Australia, and the Americas, results more from irresponsible land use patterns – deforestation, overgrazing, overcultivating, and shortsighted farming practices – than from climatic fluctuations (Eckholm and Brown 1977, updated by author).

Tropical Climates

Geographically, the tropics lie in a band 2,500 kilometers (1,560 miles) wide on each side of the equator, but climatically they are wider. There are three types of tropical climates, all hot but widely varied in rainfall. The wet equatorial climate, a band 1,100 kilometers (690 miles) wide centered on the equator, is characterized by constant rainfall (190 to 300 centimeters, or 75 to 120 inches, a year) and humidity. A monsoon strip, alternately wet and dry, lies 1,100 kilometers on either side of the wet equatorial tropics. Still farther north and south are the arid tropics, about 1,600 kilometers (1,000 miles) wide, where rain-fed agriculture is practically impossible.

In 1945, the geographer Ellsworth Huntington contended that different climates, through their direct effects on human energies and achievement, determined different levels of civilization. He argued that the highest level of achievement is affected by the degree to which the weather is moderate and variable. Following strong reaction against his theories, few recent scholars have tried to explain or even declare a relationship between climate and human achievement. At present, they do not know if hot tropical weather has a direct adverse impact on our work efficiency, creativity, and initiative.

However, Andrew W. Kamarck (1976) enumerates other less questionable notions about why economic underdevelopment occurs in the tropics and why latitude (distance from the equator) is correlated with the level of economic development. There is no winter in the tropics. Weeds, insect pests, and parasitic diseases that are enemies to crops, animals, and people are not exterminated. This disadvantage outweighs any benefit that might accrue from luxuriant plant growth. Intestinal parasites occur in nearly all domestic animals in the tropics. They retard the development of young animals, reduce yields of milk and meat, impair the working capacity of draft animals, and kill many infected animals. For example, trypanosomiasis, a disease carried by the tsetse fly, inhibits farm and transport development because it attacks cattle and transport animals in much of tropical Africa. Gigantic swarms of locusts can fly over 1,900 kilometers (1,200 miles) nonstop and attack crops anywhere from West Africa to India.

In the tropics, soil is damaged by the sun, which can burn away organic matter and kill microorganisms, and by torrential rains, which can crush soil structure and leach out minerals. And when the lush tropical vegetation is removed, soil deteriorates

unless recent alluvial or volcanic overflow replenishes it. Thus, reddish and yellowish brown laterite soils predominate in large parts of the humid tropics.

Disease is also a factor in economic underdevelopment in the tropics. This region offers far more hospitable conditions for human disease than the temperate zones. The incidence of parasitic infections in temperate zones is much lower than in the tropics, because winter kills most parasites. At least three-fourths of the adult population of the tropics is infected with some form of parasite. In fact, infectious, parasitic, and respiratory diseases account for about 44 percent of the deaths in LDCs but only 11 percent in DCs. For example, about 200 million people suffer from bilharzia, a disease carried by a parasitic worm, that may produce severe, irreversible liver damage, an enlarged spleen, and a bloated abdomen, while the rest of the body becomes emaciated. River blindness, a fly-borne infection, affects approximately 20 million people, mostly in large river valleys in tropical Africa, and causes partial or total blindness. Because constant warm temperature plays a part in this parasite's life cycle, the fly cannot successfully carry this infection into temperate areas. Amoebic and bacillary dysentery spread more rapidly in tropical areas than in temperate zones. The idea that only visitors "not used to the water" suffer from dysentery is fiction (Hagen 1975:191). Overall, these parasitic diseases substantially impair the health, well-being, and productivity of people living in the tropics.

Poor soil and plant, animal, and human diseases endemic in the tropics explain some of their underdevelopment. An exception is the industrialized highlands of southern Brazil. Although they are located in the tropics, their altitudes foster a cool climate similar to the eastern Appalachians in the United States.

No doubt problems of plague (for example, desert locusts, which spread from Ethiopia–Sudan in 1985 through much of the Sahara, Northern Africa, and Saudi Arabia by 1988), disease, and soil can be ameliorated by international cooperative research and centralized services in tropical agriculture and medicine. Clearly, capital transfer or adaptation of existing research and technology from developed temperate countries is limited as a spur to tropical economic growth until these other problems are dealt with.

In 2002, the economist Jeffrey Sachs became director of Columbia University's Earth Institute and special advisor to the U.N. Secretary General. For Sachs, development economics is wide-ranging, going beyond LDC poverty and IMF–World Bank structural adjustment (Chapters 15 and 19) to focus on tropical agriculture, soil nutrient depletion, infectious disease, biodiversity (see later), and the environment. Knowledge of them is at the center of forging a strategy to attack Africa's economic plight.

Global Public Goods: Climate and Biodiversity

Many environmental resources are **public goods**, which are characterized by nonrivalry and nonexclusion in consumption. Globalization breaks down national boundaries for many economic activities, including their goods and bads. Although carbon emissions and rain forest and specie destruction are internal public bads within

an individual tropical country, these forms of environmental degradation also have adverse impact on climate change and biological diversity for other countries, both within the region and throughout the globe. The atmosphere and biosphere are **global public goods**, as nations cannot exclude other nations from the benefits of their conservation or from the costs of their degradation.

We cannot expect interregional or global public goods to be provided in sufficient quantity by an individual tropical country in the free market, because many benefits spill over to other countries. In tropical regions such as West Africa, the ecology of the desert and the tropical rain forest are interconnected. The climatologists Yongkang Xue and Jagadish Shukla (1993a, 1993b) indicate that afforestation in southern Nigeria and southern Cameroon's tropical rain forest reduce the drought of the sub-Saharan border or Sahel, including northern Nigeria, northern Cameroon, Niger, and Chad. In addition, afforestation in this rain forest also affects global climate and stock of species.

BIOLOGICAL DIVERSITY

The earth's four biological systems – forests, grasslands, fisheries, and croplands – supply all of our food and much of the raw materials for industry (with the notable exceptions of fossil fuels and minerals). Each of these systems is fueled by photosynthesis, in which plants use solar energy to combine water and carbon dioxide to form carbohydrates, a process that supports all life on earth. Brown, Flavin, and Postel (1991:73–74) argue that unless we manage the basic biological system of converting solar energy into biochemical energy more intelligently, the earth will never meet the basic needs of 6.5 billion people.

Sustainability requires a multitude of species and genetic stock with which to experiment. **Biodiversity** includes genetic diversity, the variation between individuals and populations within a species (for example, the thousands of traditional rice varieties in India); species diversity, differing types of plants, animals, and other life forms within a region; ecosystem diversity, a variety of habitats within a grassland, marsh, woodland, or other area; and functional diversity, the varying roles of organisms within an ecosystem (World Resources Institute, U.N. Environment Program, and the U.N. Development Program 1994:147–148).

Diversity is important for two reasons. First, the diversity of species bestows stability in ecosystems. Species are entwined like a woven fabric; they cannot be seen in isolation from their ecosystem. Examples of this interdependence are the food chain, plant dependence on birds and insects for pollination, the habitat dependency of animals and insects, and the protection of species from natural enemies. Greater genetic diversity means a species is more likely to survive threats such as droughts and floods. Species diversity, the world's available gene pool, is one of the planet's irreplaceable resources.

According to the biologist David Hartnett (1994), the connections among species are intricate and far-reaching. Hunters who almost annihilated the sea otter in the United States' Pacific Coast in the early 20th century affected the rest of the ecosystem adversely. Sea otters fed on sea urchins, which fed on kelp and sea grass. As the sea

otter became virtually extinct, the sea urchin population exploded, decimating the population of sea grass and kelp that were critical habitat for coastal fish that bald eagles and harbor seals ate. Thus, the virtual extinction of the sea otter, through a complex chain, endangered the bald eagle.

Second, as genetic and species diversity in plants and animals is reduced, potential advances in medicine, agriculture, and biotechnology are also reduced. Genetic diversity provides the farm economy with options other than heavy pesticide use or substantial crop loss in the face of infestation. Species diversity provides humankind with more choices for medicines, cosmetics, industrial products, fuel, building materials, food, and other products, and more protection against plant enemies. More than half of the world's species are in the 6 percent of the earth's land surface in tropical forests, primarily in Colombia, Brazil, Madagascar, the Himalayas, the Philippines, Malaysia, Borneo, and Australia. Scientists have found as many ant species from a single leguminous tree in Peru as ant diversity in all of the British Isles. In a one-hectare (2.5-acre) plot in Kalimantan, Indonesia, another scientist found 700 tree species, about equal to the number native to all of North America. Forty percent of the species in tropical rain forests disappeared from 1985 to 2000, mostly from burning and clearing. Thus, tropical deforestation (through population growth, fuelwood consumption, and slash-and-burn agriculture) is a major force behind the biological crisis (Wilson 1989:108–110; U.N. 1990:95; World Resources Institute, U.N. Environment Program, and U.N. Development Program 1994:147–148).

The geneticist Edward O. Wilson (1989:108–115) estimates that deforestation in the late 20th century has reduced species 10,000 times faster than the natural extinction rate that existed before humans appeared; the diversity of species destroyed by human activity in the last 10,000 years will take 100 million years to recover. World Resources Institute researchers Kenton R. Miller, Walter V. Reid, and Charles V. Barber (1993:502) argue that rapid deforestation and species loss mean we are "eating our seed corn, squandering in a heedless evolutionary moment the forest's genetic capital, evolved over billions of years." The U.S. Department of Agriculture estimates that 96 percent of the commercial vegetable varieties it listed in 1903 are now extinct; the Green Revolution in Mexico and South Asia, which promoted a limited number of high-yielding varieties of grain, dropped thousands of traditional crop varieties. Crop breeders need a diversity of crop varieties to breed new varieties that resist evolving pests and diseases. Nearly all the coffee trees in South America are descended from a single tree in an Amsterdam botanical garden 200 years ago, a potentially serious problem when a new disease begins attacking coffee trees (U.N. 1990:94–95; World Resources Institute, U.N. Environment Program, and U.N. Development Program 1994:147–164).

Developing countries have focused on the critical role of biological resources in economic development. These countries' governments have questioned DC multinational corporations' policies of obtaining diverse agricultural genetic material free of charge from a gene-rich third-world country, and then selling the patented seed varieties from the material back to the country of origin at substantial prices. Although most of the cost of conserving biodiversity would fall to LDCs, because

these biological resources are largely within their borders, LDCs want DCs to pay much more of the price of conserving these resources, because, LDCs argue, DCs receive the lion's share of the benefits from these resources. DC corporations often take indigenous knowledge about products of nature, alter these products in a laboratory, and patent the altered product, LDC leaders charge. Initially, the United States did not sign the Convention on Biological Diversity at the 1992 U.N. Conference on Environment and Development because of concerns about intellectual property rights for those developing and patenting new drugs, funding for conservation of biological resources under control of DCs, control of national governments over access to genetic resources, and the obligation of all parties to provide access to and transfer biotechnology (World Resources Institute, U.N. Environment Program, and U.N. Development Program 1994:154–160). In 1993, however, President Bill Clinton signed the convention, while including a memorandum of understanding concerning protection of MNC intellectual property.

Overall, the best strategy is to buy "insurance policies" by reducing loss of species and protecting habitats from undue conversion, fragmentation, and degradation. Over time, the preservation of biological diversity provides the genetic, biological, and ecosystem stocks for solutions to all sorts of future human problems (Norgaard 1992:51; Hartnett 1994).

"GLOBAL WARMING" (GLOBAL CLIMATE CHANGE)[8]

Human activities affect the earth's climate. Although most environmental risks are local or regional, some risks, such as the costs from greenhouse gases, are global in scope. Indeed, William D. Nordhaus (1993:11–25) contends that humankind, through injecting greenhouse gases into the atmosphere, is playing dice with the universe. Air pollutants that originate from human activity and volcanic eruptions change the temperature and climate, which spur shifts in ocean circulation, which feeds back to affect climate variables (World Resources Institute, U.N. Environment Program, and U.N. Development Program 1994:197).

If humankind continues its present rates of carbon emissions, we can likely expect serious harm from the buildup of greenhouse gases and resulting global climate change. In 1997, most nations signed the Kyoto Treaty to limit greenhouse gas emissions. In 2001, U.S. President George W. Bush, supported by the U.S. Senate, abandoned the treaty, contending that mandatory controls on carbon dioxide are not necessary. However, with Russia's adoption of the treaty in 2004, it came into effect for signatory nations.

The greenhouse effect. The earth reflects some sunlight and absorbs other. When absorption is not matched by radiation back into space, the earth gets warmer until the radiation matches the absorbed incoming sunlight. Some atmospheric gases transparent to sunlight absorb radiation in the infrared spectrum, blocking outward radiation and warming the atmosphere. The greenhouse effect is the phenomenon by

[8] My thanks to the chemist Ken Klabunde for comments on this section.

which the earth's atmosphere traps infrared radiation or heat. As a metaphor, the smudgepot effect is preferable to the greenhouse, according to Thomas C. Schelling (1993:465). On a clear day in January in Orange County, California, the earth and adjacent atmosphere warm nicely, but warmth radiates rapidly away during the clear nights and frost may threaten the orange trees. Smudgepots, burning cheap oil on windless nights, produce carbon dioxide and other substances that absorb the radiation and protect the trees with a blanket of warm air. Greenhouses trap the air warmed by the earth's surface and keep it from rising to be replaced by cooler air.

Greenhouse gases include carbon dioxide (CO_2), methane, nitrous oxide, and water vapor, which keep the earth habitable, and chlorofluorocarbons (CFCs); the problem is the excessive concentration of these gases. In 1990, carbon dioxide (from coal, oil, natural gas, and deforestation) added 57 percent of the "greenhouse effect." CFCs, from foams, aerosols, refrigerants, and solvents, which progressively deplete the stratospheric ozone layer, contributed 25 percent. Methane, from wetlands, rice, fossil fuels, livestock, and landfills, added 12 percent, and nitrous oxide, from fossil fuels, fertilizers, and deforestation, 6 percent.

CO_2 absorbs infrared or heat radiation, so that increasing concentrations of CO_2 change the temperature of the earth's surface, reducing temperature differentials between the equator and the poles and decreasing atmospheric cycling, providing the potential for dramatic climatic and ecological effects. The facts of the greenhouse effect, temperature changes, and that human activity is a major contributor are not in dispute, but the magnitude of climate change on the natural environment and human welfare is in dispute (Flavin 1989; Kneese 1993:37–56; Ogawa 1993:484–96; Schelling 1993:464–83; World Resources Institute, U.N. Environment Program, and the U.N. Development Program 1994:199–205).[9]

Major contributors to greenhouse gases. The United States, with 5 percent of the world's population, consumes about one-third of the earth's nonrenewable resources and emits almost one-fourth (about 5.5 billion of 24 billion tons yearly) of its CO_2. Developed and European transitional countries, with one-fifth of the world's population, consume more than four-fifths of the world's natural resources. The demand for goods by these countries is responsible for much of the destruction of tropical rain forests for energy, minerals, logs, plantation agriculture, and fast-food hamburgers

[9] Another greenhouse gas, ozone, is found in the troposphere, the lower part of the atmosphere up to 15 kilometers above the ground. But the ozone problem is even more confusing than the problem of carbon emission, since high ozone levels in the troposphere are bad, but high concentrations in the stratosphere, 15–50 kilometers above ground, are good. Ozone is a naturally occurring gas, and in the stratosphere is concentrated into the ozone layer, which is like a thick belt around the earth. This ozone protects the earth from ultraviolet radiation from the sun, but in the lower atmosphere ozone concentrations are harmful to health and vegetation (increasing skin cancers), and contribute to the formation of "acid rain." Increased ultraviolet (UV) radiation also has a potentially disturbing effect on ecosystems. UV radiation damages DNA, growth, and reproduction, and interferes with the single-celled algae's (phytoplankton's) process of photosynthesis, thus reducing the fish stock which feed on the algae. Ultraviolet radiation also contributes to lower photosynthetic activity and reduces vegetation growth in land-based ecosystems (Turner, Pearce, and Bateman 1993:281, 285–286).

TABLE 13-2. Share of the World's Total Carbon Dioxide Emission, 1999

By country	(%)
United States	23.2
China	11.9
Russia	6.1
Japan	4.9
India	4.6
Germany	3.3
United Kingdom	2.3
Canada	1.9
Italy	1.8
South Korea	1.7
France	1.5
Australia	1.5
Brazil	1.3
Other	34
By income level	**(%)**
High income	48.2
Middle income	35.2
Low income	10.3
Other[a]	5.6

[a] Other includes those not assigned by country, including those from bunder fuels and oxidation of nonfuel hydrocarbon products.

Source: U.N. Development Program 2003:300–303.

from cattle ranching. The loss of tropical rain forests not only reduces species and genetic materials and sometimes threatens the livelihood of indigenous peoples but also diminishes carbon absorption, that is, the ability of the earth to remove excess CO_2 (Train 1993:262).[10]

DCs, with 48 percent, and the transitional countries of Eastern Europe and the former Soviet Union, with 25 percent, produce the lion's share of the globe's carbon dioxide (CO_2) emissions, whose major sources are fossil fuels. In 1999, the Group of 7 rich industrialized countries plus China, Russia, India, and South Korea were the 11 largest emitters of CO_2, comprising about two-thirds of the world's total (Table 13-2). Leading per-capita CO_2 emitters – Kuwait, Finland, the United States,

[10] The metaphor of Al Gore, *Earth in the Balance* (1993:95), is between the human lung, which inhales oxygen and exhales carbon dioxide, and the engines of civilization, which have automated breathing. The wood, coal, oil, natural gas, and gasoline that fuel our civilization convert oxygen into CO_2. Trees and other plants pull CO_2 out of the atmosphere and replace it with oxygen, transforming the carbon into wood. But, as we destroy forests, we are damaging the earth's ability to remove excess CO_2. In a sense, earth has two lungs, the forests and ocean, that are being seriously injured, impairing the earth's ability to "breathe."

Germany, Ukraine, Canada, the Netherlands, Saudi Arabia, Estonia, Australia, Singapore, Russia, Belgium, Denmark, Israel, and the United Kingdom – comprise a mixture of rich countries, countries near the Arctic Circle, and coal burners (see the last column of the inside front cover table). The United States, Germany, Canada, Russia, and Ukraine are among the world's top 10 in per-capita coal consumption. In general, carbon dioxide emissions per capita increase with income per capita.

CO_2 emissions depend on fuel mix (natural gas emits less carbon than oil, which emits less than coal), energy intensity, afforestation, economic growth, and population growth. After the high energy prices of the 1970s, Japan reduced carbon emissions (and energy imports) through technological change oriented toward reduced energy intensity. By contrast, population growth was important in increasing emissions in many developing countries, such as India. In the early 1990s, greenhouse gas emissions fell in Eastern Europe and the former Soviet Union as a result of the near collapse of their economies; but emissions grew again as growth resumed (turnaround shown in Figure 19–2).

Costs of global climate change from increased carbon emissions. Estimating the cost of reducing global carbon emissions is difficult. Models that estimate these costs include assumptions about how variables such as population and energy demand changes, and how the world will evolve over a long period with and without a control program. In this discussion, we can barely provide a sense for how these variables and climate interact.

Globally averaged surface temperatures increased 0.6 degrees Celsius during the 20th century, but most of these changes were in the last quarter of the century. The speed by which climate system has changed over the last generation is as substantial as climate changes that occur naturally over a period of 1,000 years.

Yet economic change is less dependent on changes in average temperature than on variables that accompany or result from these changes, such as precipitation, water levels, the amplitude of weather volatility, and extremes of droughts or freezes. Scientists focus on average temperature change, which is a useful index of climate change that is highly correlated with or causally related to more important variables (Flavin 1989; Nordhaus 1993:11–25; Schelling 1993:464–471).

How much will global temperatures change during the 21st century? Although forecasts vary, the scientific consensus is that, in the absence of drastic cuts in the annual global emissions of greenhouse gases, *some* global warming will occur in the 21st century. Given that atmospheric carbon dioxide has a long half-life, even reductions in emissions still increase the accumulation of greenhouse gases (Poterba 1993:47–63; Weyant 1993:27–46; World Resources Institute, U.N. Environment Program, and U.N. Development Program 1994:200). The consensus forecast among scientists is that, even with modest control measures, temperatures will rise 2.5–5.5 degrees Celsius (4.5–9.9 degrees Fahrenheit) from the late 20th century to the late 21st century.

Scientists expect that if the annual CO_2 emission rates from the 1990s continue, then CO_2 in the atmosphere will double from the 1990s to sometime in the

21st century. Most global climate models ask: What effect will this doubling have on temperature and other variables? The most widely accepted change is a temperature increase of 3 degrees Celsius, with a range of 1.5 degrees either side. This 3-degree Celsius change is much more than the variation (no more than 1 degree) in any century in the last 10,000 years. Although most North Americans are used to substantial temperature shifts from winter to summer, they may not realize how substantial a 3-degree-Celsius average change is. What is now New York City was covered by one kilometer of ice during an ice age, although global temperatures were only 6 degrees Celsius colder than today (Flavin 1989; Gore 1993:91; Schelling 1993:465–469; Schmalensee 1993:3–10).

In 1985, a Villach, Austria, conference of scientists foresaw the following effect of global warming in the 21st century:

> Many important economic and social decisions are being made today on long-term projects – major water resource management activities such as irrigation and hydropower, drought relief, agricultural land use, structural designs and coastal engineering projects, and energy planning – based on the assumption that past climatic data, without modification, are a reliable guide to the future. This is no longer a good assumption.

The economist Schelling argues, however, that the vulnerability to climate change in the 21st century will be less than if this same change had occurred in the 20th century, when global shares of gross product and the labor force in agriculture were higher. He estimates that the effect of global warming on health and nutrition in the United States and other DCs in the mid-21st century would be negligible. Indeed, for Schelling, carbon dioxide enrichment, by enhancing photosynthesis, will increase agricultural yields for many cultivated plants in the northern hemisphere, the location of most DCs. He assumes that if climatic changes are continuous over a century, then Kansas's climate may become like Oklahoma's, Nebraska's like Kansas's, and South Dakota's like Nebraska's, but Oklahoma, Kansas, Nebraska, and South Dakota will not become like Oregon, Louisiana, or Massachusetts; climate change, thus, will be gradual rather than abrupt. Some economists contend that northern nations, such as Canada and Russia, will benefit from the increased warmer-season crops and correspondingly greater agricultural yields from global warming. Schelling even concludes that DCs have no self-interest in expensively slowing CO_2 emission rates (Nordhaus 1991:33–67; Poterba 1993:47–63; Schelling 1993:466–473).[11] The London *Economist* (1991b:28–30) and *Wall Street Journal* (Adams 1992:A14; Kamm 1992:A1; Melloan 1992:A13; Murray 1992:A1; Stipp and Allen 1992:B1) agree with Schelling, although uncertainties associated with disruptions of ecosystems in both DCs and LDCs, mentioned later, raise questions about Schelling's sanguineness.

What about the LDCs of the south? Lester Brown and his colleagues argue from trends in the late 1980s and early 1990s that the earth's rapid population growth,

[11] Mendelsohn, Nordhaus, and Shaw (1994:753–771) provide evidence that global warming may have economic benefits for U.S. agriculture, even without CO_2 fertilization.

increasing average costs from and diminishing returns to growing biochemical energy and fertilizer use, less sustainable farming practices, and limits in expanded agricultural hectares mean that the earth is reaching the limits of its carrying capacity. These changes, exacerbated by adverse climatic changes, indicate concern about average food levels in LDCs (Brown 1994a:177–97, 248–51; Brown 1994b:26–27b; Brown, Platt, Kane, and Postel 1994:26–41).

The International Rice Research Institute's John Sheehy finds heat damage during flowering for rice, wheat, and corn from temperatures more than 30 degrees Celsius (86 degrees Fahrenheit). Grain yields may fall by 10 percent for every one-degree Celsius increase, Sheehy estimates, contributing to a potential yield reduction in most LDCs, primarily in the tropics, of 30 percent over the next 50 years. Grains in India (and perhaps the Philippines) are already suffering from the increased temperatures. In addition, rice in India's coastal areas is hurt from saltwater intrusion resulting from climate change (U.N. Environment Program 2001).

Moreover, parasitic and other vector-borne diseases, including possibly malarial mosquitoes, are sensitive to climatic changes. Those damaged the most by global climate changes are human settlements most vulnerable to energy reductions and most exposed to natural hazards, such as coastal or river flooding (Bangladesh, China, Egypt, island nations, and historic Venice, Italy, the jewel of the Adriatic Sea), severe drought, landslides, severe wind storms (China), and tropical cyclones, whose frequency is likely to increase 50 percent from the present to the mid-21st century from a doubling in human-generated carbon dioxide emissions (Bangladesh). If we add to all this the melting of polar ice caps, the effects of flooding on Bangladesh and other LDCs are even more substantial (Topping 1992:129–44). Brown, Flavin, and Postel (1991) argue that the LDCs of the south are the major nations suffering from global warming, even though they produce only a small fraction of the world's annual carbon emissions. They ask: Why should global warming flood the homelands of Bangladeshis who have never used electricity?

But global climate change will increase drought, heat waves, and tropical storms, raise sea level, and shift vegetation zones so as to disrupt grain and other crop production (Flavin 1989). Consider the rise in sea level.

Titus et al. (1992:8–11) assert that

> A rise in sea level would inundate wetlands and lowlands, accelerate coastal erosion, exacerbate coastal flooding, threaten coastal structures, raise water tables, and increase the salinity of rivers, bays, and aquifers. [A] rise in sea level would enable saltwater to penetrate further inland and upstream in rivers, bays, wetlands, and aquifers, which would be harmful to some aquatic plants and animals, and would threaten human uses of water.

Part of this is the fact that overflowing oceans will increase the saltwater content of previously freshwater inland rivers, deltas, and of aquifers. The effect of climate changes on these water systems is unpredictable.

Still, several economic models have estimated that doubling CO_2 would reduce GNP in the United States by 1.0–1.3 percent in the last decade of the 21st century.

Yet, these studies may underestimate the impact of specialization and international trade in reducing losses. Studies of the effect of global climate change on developing countries are more fragmentary. Probably, however, LDCs, with a larger share of GNP in agriculture and other sectors exposed to climate change than in the United States, are more vulnerable (Nordhaus 1993:14–18).

Predictions about when doubling CO_2 will occur vary from model to model. Indeed, generally the authors of these models would be the first to admit that their estimates are fraught with a large margin of error. Models cannot predict changes in prices, an important determinant of welfare. Ultimately, population increase, the relationship between population and food productivity, changes in energy demand, and other premises about how events will unfold are as important as carbon abatement cost functions in determining GNP. Scientists do not even agree on the carbon emissions attributable to various sources. Nor do scientists know the extent to which greenhouse gases adversely affect human productivity and welfare. Furthermore, many costs, such as sea-level rise, electricity operational cost, capital cost, and costs of preserving coastal wetlands, old growth forests, and biological diversity, are difficult to quantify (Morgenstern 1991:140–145; Nordhaus 1993:11–25; Schelling 1993:473).

Uncertainties abound. Except for some opportunistic weeds, plants may not migrate as fast as climate.[12] Animals may not be able to adapt to changing plant systems. Humans may not easily adapt to changes in plants, animals, and entire ecosystem, and some countries may ban migration from nations adversely affected.

Will change be as continuous as the climate models suppose? If substantial changes are exacerbated by positive feedbacks, the models might explode. Indeed, the Yale economist William D. Nordhaus (1993:14) worries about the reliability of climate models, "because climate appears to be heading out of the historical range of temperatures witnessed during the span of human civilizations."

Policy approaches. The consensus of the scientific community is that greenhouse gases are harmful, even though the exact magnitude of the harm is uncertain. Again, the best strategy is to reduce greenhouse gas emissions by buying "insurance policies" against the worst possible damage. Additionally, scientists need to continue research so as to estimate optimal greenhouse-gas abatement more precisely.

The Rio de Janeiro, Brazil, Earth Summit of 1992 and the Kyoto Treaty of 1997 allocated annual carbon emission targets on the basis of 1990 levels, rewarding the high polluters; however, future emissions are to be based on 1990 population, so as not to reward population growth (Manne and Richels 1993:135–139). Nordhaus (1993:20–24), however, shows that other approaches, such as carbon taxes or international markets for tradable emission permits discussed later, are cheaper than the Rio–Kyoto method, which is less expensive than stabilizing climate so that the change in global average temperature is limited to 1.5 degrees Celsius in the 21st century.

[12] Wilson (1989:112–124) contends that global warming will displace four North American trees – yellow birch, sugar maple, beech, and hemlock, which will fail to migrate rapidly enough.

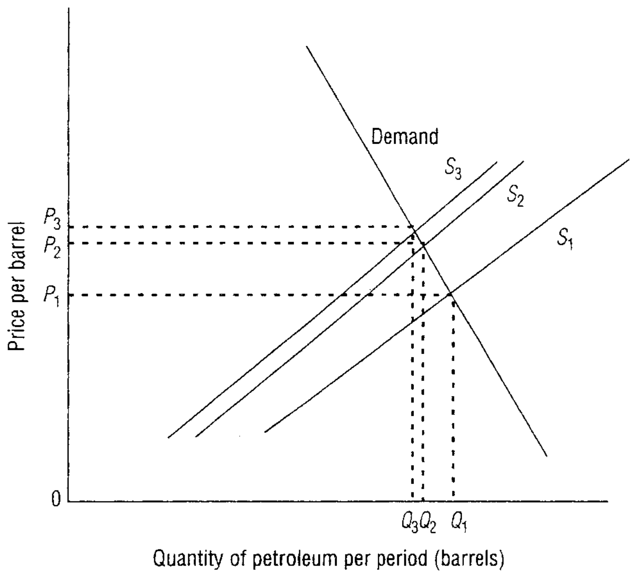


FIGURE 13-4. Levying a Carbon Tax on Petroleum.

Green taxes. This proposal, a tax on fossil fuel proportional to the carbon emitted when the fuel is burned, relies on market-based incentives that spur people to reduce emissions at least cost rather than on direct regulations, such as the Rio–Kyoto approach, that engenders inefficiencies. Government decision makers, adjusting for market imperfections, should try to tax or fine emitters so they bear the costs they transmit to others. What rule should government adopt? Remember the rule for minimal social cost discussed previously: The efficient level of emission is where marginal abatement cost equals marginal damage. These marginal values are, however, even more difficult to estimate for greenhouse-gas emitters than for other polluters. Polluters can adjust any way they please, through amelioration (including migration and shifting land use and industry patterns), abatement (such as reflecting more incoming sunlight back into space), prevention (investing in emission control), or paying the carbon tax (Poterba 1993:47–63; Schelling 1993:478).[13]

As Figure 13-4 shows, the carbon tax shifts the supply curve to the left from S_1 to S_2, increasing the price from P_1 to P_2, and reducing consumption from Q_1 to Q_2 in the short run. In the long run, as firms leave the coal and other fossil fuel industries, supply shifts further to the left, to S_3, and the price increases even further, to P_3 (Jorgenson, Slesnick, and Wilcoxen 1992:393–431, 451–54; Margin 1993: 32–33).

The taxes would increase the prices of virtually all goods and services but would substitute for other taxes. The total tax burden would be the same but would shift the burden away from income toward environmentally damaging activities, reducing

[13] Another emphasis is insurance, which compensates those adversely affected by flooding or other climate changes (Chichilnisky and Heal 1993:65–86).

environmental degradation. However, because the carbon tax is regressive, so that the poor pay a higher percentage of their income in taxes than the rich, the government might allocate some revenues from the taxes to compensate the poor.

Brown, Flavin, and Postel (1991:142–143) contend that

> Environmental taxes are appealing because they can help meet many goals efficiently. Each individual producer or consumer decides how to adjust to the higher costs. A tax on [carbon] emissions, for instance, would lead some factories to add controls, others to change their production processes, and still others to redesign products so as to generate less [carbon]. In contrast to regulations, environmental taxes preserve the strengths of the market. Indeed, they are what economists call corrective taxes: they actually improve the functioning of the market by adjusting prices to better reflect an activity's true cost.

The government can reduce the substantial GNP cost of a carbon tax increased gradually to allow time to institute new technologies when capital equipment is normally replaced. Phasing in the carbon taxes over, say, 5 to 10 years would ease the economic impact and allow for gradual adjustment (ibid., pp. 141–49; Weyant 1993:27–46).

International tradable emission permits. Harvard's Martin Feldstein (1992:A10) opposes the 1992 Rio treaty because it sets physical targets rather than using marginal or "least cost" principles of abatement. The principle of least-cost reduction rests on the scientific fact that a ton of carbon emitted anywhere on the globe contributes equally to global greenhouse gases. Once countries negotiate emission rights, Feldstein favors international tradable emission permits to achieve the least marginal cost per unit of abatement. A change from a regulatory system to transferable discharge permits should provide incentives for emitters to adopt new control techniques to reduce emissions at lower cost, as they can sell excess permits. Emitters facing steep control costs will purchase permits from emitters having less costly options, thereby subsidizing the more efficient control of emissions by low-cost emitters (Tietenberg 1993:241–70).

Stanford's John P. Weyant (1993:34–36) examined the implications of the Energy Modeling Forum 12, a composite of 14 major models of global climate change, for the cost of global carbon emissions control. He found that the Rio approach of stabilizing emissions at 1990 levels in each country cost 2.5 percent of world GDP by the year 2043. However, the economic optimal approach, which uses tradable emission permits, allowing an equalization of the marginal cost of control across all nations, achieves the same target levels at two-thirds the costs, or a loss of only 1.7 percent of world GDP.

Nordhaus and Boyer's updated DICE model. William Nordhaus and Joseph Boyer, in the policy discussion of their DICE-99 model (Dynamic Integrated model of Climate and the Economy; 2000), come to a similar conclusion. They discuss an optimal

policy, in which carbon and emissions prices are set (through a carbon tax) to equate marginal damage and marginal abatement cost (a shadow price of carbon), and in which emission permits are allocated equal to each country's equilibrium carbon tax. Nordhaus and Boyer oppose an "environmental pope" (2000:123) but discuss an optimal policy to set a benchmark to compare policies. The optimal policy, which reduces the global temperature rise to 2.3 degrees Celsius, costs the world $5 billion (in 1990 dollars) yearly (2005 prices would be 35–40 percent higher), and would be levied in 2000–2010 at about $5–10 per ton. This most efficient policy would be relatively inexpensive but would slow climate change surprisingly little. Less efficient policies would be variations of the Kyoto Protocol, with the least efficient where no trading is allowed (cost would be 15 times the optimum) and the most efficient where trading is allowed among the OECD, the former Soviet Union, and East Central Europe (called Annex I trading, begun by the European Union in 2005). Nordhaus and Boyer agree with Weyant that other alternatives discussed (limiting CO_2 concentrations to twice preindustrial levels, limiting climate change to a 2.5 degrees Celsius or less temperature rise, and stabilizing global emissions at 1990 levels) would be even less efficient than Kyoto plus Annex I trading.

Nordhaus and Boyer conclude that the Kyoto approach has no economic or environmental rationale. Kyoto with trading permits, however, would be close to the optimum in the early years of the century but would reduce emissions less than the optimal amount in later years. To reduce emissions efficiently later in the century, Nordhaus and Boyer favor targeting today's LDCs. Freezing emissions for LDCs will no longer be feasible later in the 21st century, as by then DCs' emissions will be a dwindling fraction of the globe's. The distributional consequences, the authors contend, will be that LDCs and other DCs will break even or benefit at the expense of the United States.

Multilateral aid and agreements in funding global common property resources in tropical countries. DCs and transitional countries are the major carbon emitters. When D. S. Mahathir Mohamed was Malaysian prime minister (1992:C-5), he contended that if humankind is to clean up the global environment, "those most responsible for polluting [the environment] must bear the burden proportionately. Eighty percent of Earth's pollution is due to the industrial activities of the North." The World Bank (1992i:3) concurs, arguing that the North should bear the burden of finding and implementing solutions to global warming, ozone depletion, and other environmental problems.

To be sure, the share of emissions from today's low- and middle-income countries (now roughly half – see Table 13-2) will increase as the century progresses. However, low-income countries, primarily located in the tropics, will pay little to avoid long-term environmental degradation. Tropical countries are not just poor, but their environmental problems, such as rain forest and species destruction, are not just public bads internal to the country but also global public bads. Tropical countries receive only a portion of the gain from maintaining tropical rain forests or reforestation to limit greenhouse gases, adverse climate change, and the loss of

biological resources. Because tropical rain forests are global public goods, affecting global climate and genetic stock, we cannot expect individual tropical countries to provide forests in sufficient quantities, as much of the gain spills over to other countries.

If DCs want to protect themselves against the risk of explosive harm and care about LDC economic and environmental vulnerability, they will want to contribute resources to invest in reducing environmental degradation. Indeed, DC contributions to technological transfer, such as switching LDCs from high-carbon to low-carbon fuels, could add to DC national income. Additionally, DC aid might include concessional aid to tropical LDCs to help avoid global damage from tropical deforestation and species loss, while partially compensating tropical countries for forgoing private gain. This compensation can reduce the tropics' sacrifice of immediate basic needs. As discussed in Chapter 16, some DC governments and nongovernmental organizations have undertaken debt-for-nature swaps in Africa and Latin America. In the 1990s and early part of this century, DCs and their environmental nongovernmental organizations (sometimes supported by legislation, for example, in the U.S. Congress) purchased portions of the debts of tropical countries in exchange for their preservation of tropical rain forest and its biodiversity.

Humankind generally has an interest in providing funds to preserve these tropical global common-property resources. DCs need to focus on agreements to reduce global public bads associated with deforestation and species destruction in tropical regions. These countries might regard their spending as investment in ecosystems that influence the productivity of the common resources of humanity. Such agreements would benefit the world as a whole but would particularly benefit tropical countries in reducing their environmental degradation and adverse climate change.

Still, international environmental agreements to fund and regulate global public goods have had a mixed record. The **Montreal Protocol**, signed in 1987 and strengthened in 1990, to reduce ozone depletion through the cutting of chlorofluorocarbon (CFC) production, enjoyed widespread compliance among the predominant CFC producers, the DCs, which had already developed cost-effective substitutes. However, the International Convention on Climate Change (ICCC), signed in 1994, which required national inventories on greenhouse gas emissions, has not been so successful, partly because of the ICCC's substantial costs and complexity, and opposition, especially in the United States, to taxes on carbon emissions. The institutions for implementation, enforcement, and financing the ICCC are thus far poorly developed (World Resources Institute, U.N. Environment Program, and U.N. Development Program 1994:202–203). In addition, the Global Environment Facility established in 1991, under which funding for global public goods might take place, has had only limited success, partly because of the lack of funding and difficulties in agreeing how to divide the funding.

No single nation acting alone can stabilize greenhouse gas emissions. Additionally, unilateral national policies do not achieve the least-cost method of reducing emissions. Moreover, international competition to attract industry through less stringent emissions standards may undermine environmental policy making. Thus, a

supranational approach is essential. However, coordinated international action is difficult to achieve (Poterba 1993:48–49).

Harold Demsetz (1967:347–359), an economist from the University of California, Los Angeles, thinks it is unlikely that users of a global common property resource (such as air and water) would agree to manage the resource even though it is in the interest of all to cooperate in reducing use of the resource. Although all users benefit, each user will earn even higher returns by **free riding** on the virtuous behavior of the remaining cooperators. Global optimality requires global cooperation, yet the incentives facing individual countries work in the opposite direction. As with the international nuclear nonproliferation treaty or ICCC, we might expect the united action by users to be unstable. Demsetz argues that the only way out of the common property dilemma is intervention by the state. However, the world lacks an international government that can dictate the environmental policies of individual states.

Still, a number of countries may collude to sign an international environmental agreement even when a number of countries do not cooperate. Countries may agree to pursue the global optimality strategy if all other countries in previous periods abide by this strategy. Also, countries can punish those that refuse to abide by whaling conventions, nonproliferation treaties, or other environmental agreements by import embargoes or other sanctions. Concerns about fairness can reduce the free-rider problem. Furthermore, a noncooperator may find it advantageous to join the agreement if strengthening it increases others' abatement levels in excess of the abatement costs the country incurs. Pulling out of a treaty may result in less abatement by other countries, so that the cost of pulling out exceeds the benefits (Barrett 1993:454–463). If major nations fail to make commitments to a global environmental accord and choose to free ride on the actions of other nations, the prospects for the success of environmental agreements are limited (Poterba 1993:48–49).

The United States has an interest in rejoining the multilateral Kyoto Treaty process but insisting on the use of green markets with tradable emission permits, a more efficient approach than setting temperature and emissions limits. The main opposition by U.S. politicians to Kyoto is exempting LDCs, such as highly populated China and India, from reduced carbon emissions. No doubt the United States will insist that LDCs, at least middle-income countries, reduce emissions. If the United States joins Kyoto, the United States could benefit by selling and transferring green technology, including that to increase carbon absorption. Still, we can expect difficult negotiations before the United States rejoins Kyoto.

Limits to Growth

The 19th-century English classical economists feared eventual economic stagnation or decline from diminishing returns to natural resources. The concept of diminishing returns was the foundation for Malthus's *Essay on the Principles of Population* (1798, 1803), which argued that population growth tended to outstrip increases in food supply. Economists have long disputed whether diminishing returns and Malthusian population dynamics place limits on economic growth.

THE CLUB OF ROME STUDY

In the early 1970s, the influential Club of Rome, a private international association organized by the Italian industrialist Aurelio Peccei, commissioned a team of scholars at MIT to examine the implication of growth trends for our survival. The study, *The Limits to Growth* (Meadows, Meadows, Randers, and Behrens 1972) based on computer simulations, uses growth trends from 1900 to 1970 as a base for projecting the effects of industrial expansion and population growth on environmental pollution and the consumption of food and nonrenewable resources. The study and its sequel (Meadows, Meadows, and Randers 1992) suggest that as natural resources diminish, costs rise, leaving less capital for future investment. Eventually, new capital formation falls below depreciation, so that the industrial base, as well as the agricultural and services economies, collapses. Shortly after population drops precipitously because of food and resource shortages. *Limits* concludes that if present growth continues, the planetary limits to growth will be reached sometime in the 21st century, at which time the global economic system will break down.

The message of *Limits* is that because the earth is finite, any indefinite economic expansion must eventually reach its limits. Exponential growth can be illustrated by the following. Take a sheet of paper and continue to fold it in half 40 times. Most of you will give up long before the 40th time, at which time the paper's thickness, initially one millimeter, will stretch to the moon! In a similar vein, we can appreciate the contention of *Limits* that without environmental controls, economic growth and the attendant exponential increase in carbon dioxide emissions from burning fossil fuel, thermal pollution, radioactive nuclear wastes, and soluble industrial, agricultural, and municipal wastes severely threatens our limited air and water resources.

The previous pages have explored some of the limits associated with the overuse of common-property resources, the "**tragedy of the commons**." No one can ignore the warnings to humankind to pay attention to these limits.

Yet many of the assumptions the MIT scholars make are seriously flawed. For example, their estimates indicate that they apparently believe that *proven* petroleum reserves represent *all* the petroleum reserves of the world. However, **proven reserves** are not satisfactory for making long-term projections, as they are only the known reserves that can be recovered profitably at prevailing cost and price levels. Proven reserves are no more than an assessment of the working inventory of minerals that industry is confident is available. Profit-motivated, commercial exploration tries to find only sufficient new reserves to meet the industry's requirements over its forward planning period (typically 8 to 12 years), plus any new reserves that promise to be more profitable than previous discoveries.

Thus, it is not surprising that proven reserves are rather meager in comparison to the reserves that can ultimately be recovered. We therefore have the spectacle in 1864 of W. Stanley Jevons, one of the great economists of the 19th century, predicting that England's industry would soon grind to a halt with the exhaustion of England's coal. A modern example of this disparity between proven and ultimately recoverable reserves is that in 1970, the proven reserves of lead, zinc, and copper were much larger than those in 1949, even though the amount of these metals mined between

1949 and 1970 was greater than proven reserves in 1949. Moreover, although in 1977, U.S. President Jimmy Carter said that we "could use up all the proven reserves of oil in the entire world by the end of the next decade," by 2004 these reserves were larger than ever (Will 2004:B7).

A further criticism of the MIT team is that their model analyzes the world's population, capital stock, natural resources, technology, and output without discussing differences by world region. It also treats food output as a single entity, ignoring differences among cereals, fruits, vegetables, and animal products.

Another flaw in the MIT study concerns the assumption of exponential growth in industrial and agricultural needs, but the arbitrary placement of nonexponential limits on the technical progress that might accommodate these needs. As Robert Cassen (1994:7) contends, "Only where specific binding constraints cannot be compensated for by human ingenuity do economies encounter effective limits to growth."

A complex computer model only aids understanding if its assumptions are valid. Critics (Robinson 1975:28–31; Surrey and Page 1975:56–64; Simon 1981; Clark 1977) argue that *Limits* is not a "rediscovery of the laws of nature," as the authors' press agents claim, but a "rediscovery of the oldest maxim of computer science: Garbage In, Garbage Out" (Passell, Roberts, and Ross 1972).

DALY'S IMPOSSIBILITY THEOREM

Herman E. Daly (1977) more clearly indicates the assumptions, calculations, and causal relationships behind limits to economic growth and, unlike *Limits*, goes on to calculate their effect on increased international conflict. According to him, a U.S.-style, high mass consumption, growth-oriented economy is impossible for a world of 6.5 billion people (updated to 2005). The stock of mineral deposits in the earth's crust and the ecosystem's capacity to absorb enormous or exotic waste materials and heat drastically limit the number of person-years that can be lived at U.S. consumption levels. Daly believes that how we apportion these person-years of mass consumption among nations, social classes, and generations will be the dominant political and economic issue of the future. The struggle for these limited high-consumption units will shape the nature of political conflict, both within and between nation-states.

Daly's argument that the entire world's population cannot enjoy U.S. consumption levels – the **impossibility theorem** – can be illustrated in the following way. Today, it requires about one-third of the world's flow of nonrenewable resources and 26 percent of gross planetary product (the gross production value of the world's goods and services) to support the 5 percent of the world's population living in the United States. By contrast, the 80 percent of the world's population living in LDCs use only about one-seventh of the nonrenewable resources and produce only 17 percent of the gross planetary product, according to Daly. Present resource flows would allow the extension of the U.S. living standard to a maximum of 15 percent of the world's population with nothing left over for the other 85 percent.

Daly (1993:29–38) argues that natural capital is the limiting factor in economic evolution. Thus, we need to concentrate on increasing output per natural capital, as we cannot substitute physical capital or labor for natural capital. Daly illustrates

the impossibility of continuing growth in the use of natural capital by pointing out that humans directly use or destroy about 25 percent of the earth's **net primary productivity (NPP)**, the total amount of solar energy converted into biochemical energy through the photosynthesis of plants minus the energy these plants use for their own life (Postel's definition, 1994:4–12). Other land-based plants and animals are left with the remainder, a shrinking share. At a 1.3-percent yearly population growth, population and humankind's proportion of NPP double in 54 years; another doubling means humanity's share of NPP is 100 percent, which is not possible. Indeed, Daly thinks humankind's share of net productivity is already unsustainable.

For some, the solution to this dilemma is to increase world resource flows sixfold, the amount needed to raise world resource use per capita to that in the United States. However, to increase resource flows this much, the rest of the world would have to attain the capitalization and technical extracting and processing capacity of the United States. Such an increase in capital would require a tremendous increase in resource flows during the accumulation period. Harrison Brown (1970:195–208) estimates that it would take more than 60 years of production at 1970 rates to supply the rest of the world with the average industrial metals per capita embodied in the artifacts of the ten richest countries. Furthermore, because of the law of diminishing returns, a sixfold increase in net, usable resources, energy, and materials implies a much greater than sixfold increase in gross resources and environmental impact. Enormous increases in energy and capital devoted to mining, refining, transportation, and pollution control are essential for mining poorer grade and less-accessible minerals and disposing safely of large quantities of wastes.

Brown's estimates are based on rough input–output relationships with no allowance for new discoveries and technological improvements. Nevertheless, the required increases in resource flows suggest the difficulty, if not impossibility, of the world attaining a U.S.-style consumption level by the early to mid-21st century.

ENTROPY AND THE ECONOMIC PROCESS

The application of the physical law of **entropy** to production shows, from a scientific perspective, the finite limits of the earth's resources. What goes into the economic process represents valuable natural resources; what is thrown out is generally waste. That is, matter-energy enters the economic process in a state of low entropy and comes out in a state of high entropy. To explain, entropy is a measure of the *unavailable* energy in a thermodynamic system. Energy can be free energy, over which we have almost complete command, or bound energy, which we cannot possibly use. The chemical energy in a piece of coal is free energy because we can transform it into heat or mechanical work. But when the coal's initial free energy is dissipated in the form of heat, smoke, and ashes that we cannot use, it has been degraded into bound energy–energy dissipated in disorder, or a state of high entropy. The second law of thermodynamics states that the entropy of a closed system continuously increases, or that the order of such a system steadily turns into disorder. The entropy cost of any biological or economic enterprise is always greater than the product. Every object of economic value – a fruit picked from a tree or a piece of clothing – has a low

entropy. Our continuous tapping of natural resources increases entropy. Pollution and waste indicate the entropic nature of the economic process. Even recycling requires an additional amount of low entropy in excess of the renewed resource's entropy (Georgescu-Roegen 1971).

We have access to two sources of free energy, the stock of mineral deposits and the flow of solar radiation intercepted by the earth. However, we have little control over this flow. The higher the level of economic development, the greater the depletion of mineral deposits and, hence, the shorter the expected life of the human species. For the theorist Nicholas Georgescu-Roegen, every time we produce a Cadillac, we destroy low entropy that could otherwise be used for producing a plow or a spade. Thus, we produce Cadillacs at the expense of future human life. Economic abundance, a blessing now, is against the interest of the human species as a whole. We become dependent on, and addicted to, industrial luxuries, so that, according to Georgescu-Roegen, the human species will have a short but exciting life.

Georgescu-Roegen's perspective is one not of decades but of millennia, as his preoccupation is with our survival as a species. But even if we have little concern beyond the lifetime of our great-grandchildren, we ignore pessimists such as Daly and Georgescu-Roegen at our peril.

Natural Asset Deterioration and the Measurement of National Income

The most widely used measure of economic progress, gross income or product, has major failings as a measure of economic welfare. Chapter 2 indicates that GNI or GDP is overstated as a number of items included in their national incomes are intermediate goods, reflecting the costs of producing or guarding income. Gross product assigns a positive value to any economic activity, whether it is productive, unproductive, or destructive.

The former World Bank President Barber B. Conable (1995) contends that

> Unfortunately, [gross product figures] are generally used without the caveat that they represent an income that cannot be sustained. Current calculations ignore the degradation of the natural resource base and view the sales of nonrenewable resources entirely as income. A better way must be found to measure the prosperity and progress of mankind.

The expenditures on smog eradication, water purification, health costs from air pollution, and the reduction of traffic congestion that add to national income are really costs of economic growth. The 1989 Alaskan oil spill actually increased GNP, since much of the $2.2 billion spent on labor and equipment for the cleanup added to income. Shifting from the automobile to the bicycle and light rail transport would probably enhance urban life but reduce GNP. The quality of services and sustainability of consumer services are more important indicators of progress (Bracho 1989; Brown, Flavin, and Postel 1991:124).

Economists subtract depreciation when factories, buildings, and other capital equipment depreciate (age and fall into disrepair), but make no similar subtraction for the deterioration of forests, soil, air quality, and other natural resources, the loss of biology diversity, and other environmental degradation. When people cut trees and sell timber, the proceeds count as income but there is no subtraction from GNP to get NNP. Natural wealth is whittled away with no debit for the loss of species and the deterioration of the forest, depletion of soil nutrients, and depreciation of economic assets that could provide revenue long into the future if managed well. We need a measure of regeneration of atmosphere and other natural assets. The World Resources Institute economist Robert Repetto points out the failure to distinguish between natural asset destruction and income generation makes GNP "a false beacon, and can draw those who steer by it onto the rocks." Indonesia, Nigeria, Kenya, Bolivia, Colombia, Ethiopia, Ghana, and other countries dependent on primary products – fuels, timber, minerals, and agricultural crops – for 75 percent or more of exports are most in danger of running aground. Nigeria overcut its forests so that timber, a major export of the 1960s and early 1970s, virtually disappeared from export accounts in the 1980s and 1990s. A country can still register GNP growth while heading toward ecological bankruptcy (Brown, Flavin, and Postel 1991:121–124; Dasgupta 1995:111–146).

Robert Repetto and his colleagues (1989) examined the implications for Indonesia of a more accurate measure of income and wealth. Repetto et al. found that when you considered the depletion of only three natural resources – forests, soils, and petroleum – the average annual growth of Indonesia's GNP per capita from 1971 to 1984 fell from 4.8 percent to 1.7 percent. If coal, mineral ores, and other nonrenewable-resource exploitation and fisheries deterioration had been included, average GNP would have fallen even more.[14]

THE WORLD BANK'S ADJUSTED NET SAVINGS

Conable and other critics argue that we need better ways to measure the progress of humanity than GNI. Because of difficulties in determining whether expenditures for environmental protection should be treated as intermediate or final consumption, neither the World Bank nor the United Nations has devised an acceptable "green" national product. However, the Bank has subtracted resource depletion and environmental degradation from gross savings to get changes in wealth (adjusted net savings) as an indicator of sustainability (Figure 4-2 and Table 13-3). Change in wealth is a good measure of a country's ability to sustain a consumption stream, not just the consumption flow at a given time (World Bank 2003i:15–16). Table 13-3 shows savings, with capital consumption (depreciation), carbon dioxide damage, and energy, mineral, and net forest depletion subtracted and education expenditure added. After considering population growth, Partha Dasgupta (2001:C1–29) finds that changes

[14] Repetto et al. find that Indonesia's annual GNP growth fell from 7.1 percent to 4 percent. I have adjusted these figures for population growth to get the per capita figures.

TABLE 13-3. Toward Adjusted Net Savings, 1999 (percentage of GDP)

Income and region	Gross domestic savings	– Consumption of fixed capital	– Energy depletion	– Mineral depletion	– Net forest depletion	– Carbon dioxide damage	+ Education expenditure	= Adjusted net savings
By income								
Low income	20.3	8.3	3.8	0.3	1.5	1.4	2.9	7.8
Middle income	26.1	9.6	4.2	0.3	0.1	1.1	3.5	14.3
Low and middle income	25.2	9.4	4.1	0.3	0.4	1.2	3.4	13.3
High income	22.7	13.1	0.5	0.0	0.0	0.3	4.8	13.5
By region								
East Asia and Pacific	36.1	9.0	1.3	0.2	0.4	1.7	1.7	25.2
Europe and Central Asia	24.6	9.1	6.0	0.0	0.0	1.7	4.1	11.9
Latin America and the Caribbean	19.2	10.0	2.8	0.4	0.0	0.4	4.1	9.6
Middle East and North Africa	24.2	9.3	19.7[a]	0.1	0.0	1.1	4.7	−1.3
South Asia	18.3	8.8	1.0	0.2	1.8	1.3	3.1	8.3
Sub-Saharan Africa	15.3	9.3	4.2	0.6	1.1	0.9	4.7	3.9

Note: Adjusted net savings are equal to net domestic savings (calculated as the difference between gross domestic savings and consumption of fixed capital plus education expenditure minus energy depletion, mineral depletion, net forest depletion, and carbon dioxide damage).

[a] Note that the energy depletion figure in the table is stated in terms of GDP. This translates to an annuals depletion rate of about 1 percent of proven reserve.

Source: World Bank 2003i:17.

in wealth are positive in China but negative in India, Pakistan, Bangladesh, and Africa, meaning that the latter are running down their assets on a per capita basis (World Bank 2003i:16–17; see Arrow et al. 2004:161 for similar estimates on genuine investment).

THE GENUINE PROGRESS INDICATOR (INDEX OF SUSTAINABLE ECONOMIC WELFARE)

Daly, John Cobb, and Clifford Cobb (1994) developed the **Genuine Progress Indicator** or **Index of Sustainable Economic Welfare** (**ISEW**) per capita, a more comprehensive indicator of well-being than national income that takes into account average consumption, the flow of consumer services, income distribution, sustainable investment, housework and nonmarket transactions, changes in leisure time, the cost of unemployment and underemployment, the lifespan of consumer durables and infrastructure, defensive (commuting, automobile accident) costs, air and water pollution, resource depletion, and long-term environmental damage, including greenhouse-gas emission and ozone depletion. Daly, Cobb, and Cobb think GPI in the United States rose continuously for almost two centuries, although, lacking a long-term series, their measure only shows the steady increase for the three decades from 1950 to 1976 (Figure 13-5). GPI per capita peaked in 1976, with about $12,000, whereas GDP per capita was about $21,000 (in 1996 dollars). However, from 1976 to 2002, although GDP per capita rose to about $35,000, GPI fell to about $10,000, increasing the gap between the two measures substantially. The major growths of the subtractions from GDP include cost of pollution, depletion of nonrenewable resources, long-term environmental economic damage, ozone depletion, loss of wetlands, loss of farmland, and loss of old-growth forests. Benefits added to GPI that are ignored by GDP include value of housework and parenting, and services of consumer durables, highways, and streets (Anielski and Rowe 1999; Cobb, Glickman, and Cheslog 2001; Venetoulis and Cobb 2004:9).

GPI or an alternative measure to adjust gross product for resource depletion and environmental damage requires much more research, conceptualization, and measurement. Many of the estimates used for GPI have large margins of error. The measures of damage of water quality, for example, are crude. Some GPI variables are not complete. Thus, the measure of environmental damage does not include estimates of depletion of genetic diversity, or urban and farmland runoff. There are conceptual problems in estimating the value of nonrenewable resources, the prices of these resources, and the number of years to exhaust resources. Moreover, many assumptions are conjectures that play a substantial role in the final numbers. Nevertheless, once national-income statisticians include environmental and resource variables in their measures of economic welfare, we can expect continuing improvements in their concepts and methods.

Adjusting Investment Criteria for Future Generations

The Nobel economist Jan Tinbergen (1992:x) states that “two things are unlimited: the number of generations we should feel responsible for and our inventiveness.”

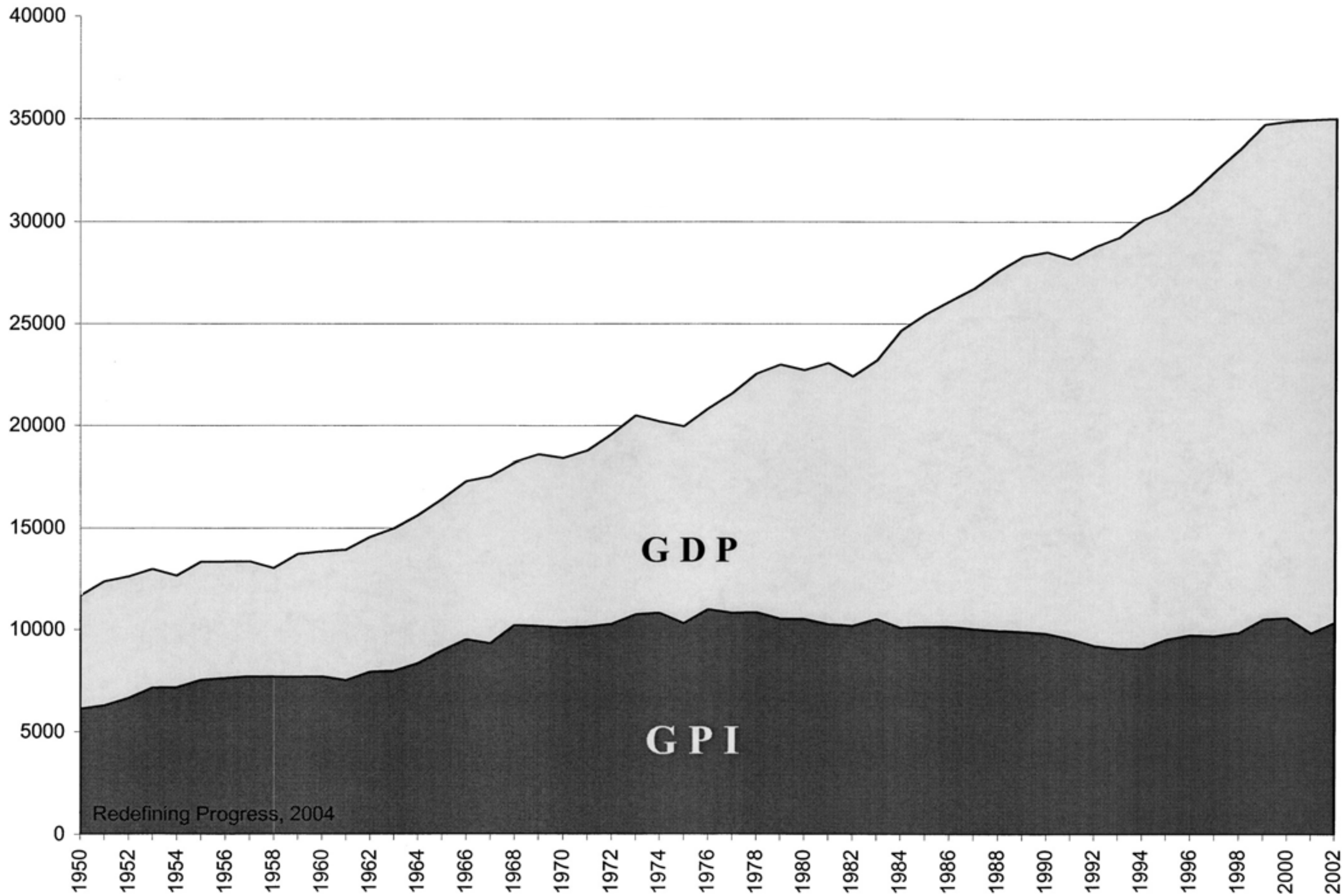


FIGURE 13-5. Gross Domestic Product Versus Genuine Progress Indicator, 1950–2002 Per Capita ($2000). *Source:* Venetoulis and Cobb (2004:9).

The long run in economic analysis tends to be as little as 10–25 years, but for the biologist and geologist the long run is at least several generations. Critics argue that using the economist's time preference will only hasten the conversion of natural environments into low-yield capital investments. The economist's investment choice, based on maximizing present value, assumes that current generations hold all rights to assets and should efficiently exploit them. But markets do not necessarily provide for equity between generations. Most depleted mineral and biological wealth, especially biodiversity, is all but impossible to recapture after it is destroyed, thus reducing natural assets in the future. Using conventional investment criteria, in which benefits and costs are discounted at a substantial positive rate of interest, automatically closes off the future. If discounted at 15 percent annually, the present value of a dollar five years from now is $0.50, 16 years from now $0.11, and 33 years from now only $0.01. Moreover, even with a 5 percent discount rate, the output (and survival) of earth's residents 50 years hence is worth virtually zero. Surely this is absurd.

Economists such as Berkeley, California's Richard B. Norgaard (1992:27, 37–38, 48) contend that conventional investment criteria, based on meeting this generation's preference for consumption over time, is *not* justifiable when the future's needs are at stake. We need to distinguish between investment for this generation's time preference and investment to transfer resources and species to future generations. A possible rule of the thumb that considers the preferences of future generations would be one where assets – natural, produced, and human capital – in each time period or generation must be at least as productive as that in the preceding period or generation. Each generation would be obligated to pass on to the next generation a mix of assets that provides the potential for equal or greater flows of income. For Norgaard, this means legislation to protect individual species, set aside land for parks and reserves, and establish social conservation agencies to institutionalize protection of the rights of future generation. Humankind, once meeting the constraint of sustainability, should then select investment projects with the highest social rates of return based on more conventional economic criteria.

John V. Krutilla (1993:188–198) thinks that today's investment behavior will be motivated by the desire to leave an estate to descendants that will yield collective consumption goods of appreciating future values. Nobel economist Robert Solow (1993:179–187) argues that we need not leave the world as we found it in detail nor should each generation leave undiminished the natural resources and plant and animal species existing on earth, as humans can substitute one input for another in production. In fact, Harvard's Larry Summers (1992:65) believes that you can use conventional investment criteria if you compute environmental spillovers (external costs and benefits) accurately. If people feel the market does not value the rain forest in the Amazon River basin highly enough, the Brazilian government can set land or user prices, purchase the land for a reserve, tax nearby factories' pollutants, or request aid from a global environment facility to prevent irreversible damage to the forest's biodiversity and carbon sequestration.

Although the costs of preserving endangered species and curbing carbon emissions are incurred in the immediate future, many major benefits do not occur until the

second quarter of the 21st century or later, so that benefit–cost ratios are highly dependent on the interest (or discount) rate. The Cambridge economist Partha Dasgupta (1995a:111–43) indicates that for the discount rate to be valid, people need to know something concrete about feasible development paths and about productivity of capital. In practice, these paths are so uncertain and so prone to irreversible damage that the present generation should stress preserving the future generations' options. Growth must come from increased efficiency and innovation rather than by shifting costs of environmental degradation to innocent bystanders or future generations.

Living on a Lifeboat

What impact do limited resources have on the ethics of whether or not rich countries should aid poor countries? Hardin (1974:561–568), who uses the metaphor of living on a lifeboat, argues that food, technical, financial, and other assistance should be *denied* to desperately poor countries as a way of ensuring the survival of the rest of the human species. Hardin sees the developed nations as a lifeboat with a load of rich people. In comparison,

> The poor of the world are in other, much more crowded lifeboats. Continuously . . . the poor fall out of their lifeboats and swim for a while in the water outside, hoping to be admitted to a rich lifeboat, or in some other way to benefit from the "goodies" on board.

Hardin sees only three options for the passengers on the rich lifeboat, filled to perhaps 80 percent of its capacity:

1. Take all the needy aboard so that the boat is swamped and everyone drowns – complete justice, complete catastrophe.
2. Take on enough people to fill the remaining carrying capacity. However, this option sacrifices the safety factor represented by the extra capacity. Furthermore, how do we choose whom to save and whom to exclude?
3. Admit no more to the boat, preserve the small safety factor, and assure the survival of the passengers. This action may be unjust, but those who feel guilty are free to change places with those in the water. Those people willing to climb aboard would have no such qualms, so the lifeboat would purge itself of guilt as the conscience-stricken surrender their places.

This ethical analysis aside, Hardin supports the **lifeboat ethic** of the rich on practical grounds: The poor (that is, the LDCs) are doubling in numbers every 44 years, the rich (DCs), every 700 years. During the next 44 years, the 3.8 to 1 ratio of those outside to those inside the rich lifeboat will increase to 7.3 to 1.[15]

Hardin's premises about population growth are faulty. He expresses concern that some of the "goodies" transferred from the rich lifeboat to the poor boats may merely "convert extra food into extra babies" (Hardin 1974:564). To be sure, some agriculturists express concern that food output per capita may no longer be growing.

[15] The doubling time and ratios are based on 2003 population growth figures.

Moreover, LDC population growth has been caused by falling mortality rates, not greater fertility (which instead has been dropping). Furthermore, if economic aid to LDCs facilitates development, fertility rate will fall rather than rise (see Chapter 8).

In addition, Hardin's lifeboat metaphor is flawed. In contrast to Hardin's lifeboats, which barely interact, nations in the real world interact enormously through trade, investment, military and political power, and so on. His metaphor is not realistic enough to be satisfactory. Hardin must admit that the rich lifeboats are dependent on the poor lifeboats for many of the materials and products of their affluence. Furthermore, the rich lifeboats command a disproportional share of the world's resources. Indeed, one seat on the lifeboat (that is, access to a given amount of nonrenewable resources) can support 10 times the population from a LDC as from the DC. Daly and Georgescu-Roegen would argue that it is North Americans, not Africans and South Asians, who most endanger the stability of the lifeboat. The average person in the United States, for instance, consumes about 107 times as much energy and emits 45 times as much carbon dioxide per capita as the average citizen of Bangladesh (see the front inside cover table's last column). Also Hardin fails to acknowledge that the carrying capacity of the planet, unlike that of the lifeboat, is not fixed but can increase with technical change. Indeed, technical assistance can enhance output in the poor countries without hurting the rich countries. Finally, Hardin's rich lifeboat can raise the ladder and sail away. In the real world, we may not be able to abandon the poor. Rich countries can provide economic aid, including assistance for education, public administration, family planning, and environmental resources, particularly global public goods (see earlier this chapter and Chapter 15).

Conclusion

1. Land and natural resources are distinguishable. Land is immobile and potentially renewable. Natural resources are mobile, but most are nonrenewable.
2. Environmental resources are resources provided by nature that are indivisible.
3. Oil crises in the 1970s worsened the balance of trade deficit, debt burden, and inflation rate and slowed the growth rate of oil-importing LDCs, but the oil glut in the 1980s and early 1990s reduced these problems for some oil importers.
4. Dutch disease is the adverse competitive effect that local currency appreciation due to a booming export sector has on other exports and import substitutes.
5. Sustainable development refers to maintaining the productivity of natural, produced, and human assets from generation to generation. Norgaard argues that conventional investment criteria are not adequate for considering the consumption needs of future generations.
6. Panayotou contends that environmental degradation originates from market distortions, defective economic policies, and inadequate property rights definitions, meaning that environmental problems are basically economic problems.
7. External diseconomies, overuse of an open access resource, underproduction of public goods, the irreversibility of rare phenomena of nature, murky owner and user rights to an asset, and high transactions costs are market imperfections that contribute to environmental degradation. Pollution problems result from

divergences between social and commercial costs. These divergences even occur under socialism; indeed, the Soviet Union's ruthless treatment of land, air, and water illustrate how everybody's property may become nobody's property.

8. The efficient level of pollution emission is where marginal damages are equal to marginal abatement costs.
9. Contingent valuation is the use of questionnaires from sample surveys to elicit the willingness of respondents to pay for an environmental good. Many economists regard contingent evaluation as deeply flawed.
10. About 14 percent of the world population lives on arid or semiarid land. Increases in arid lands in the last several decades are traceable to overcultivation, deforestation, and so forth.
11. Economic underdevelopment in the tropics is partly a matter of geography. There is no winter to exterminate weeds and insect pests. Parasitic diseases are endemic and weaken the health and productivity of people. The heat and torrential rains damage the soils, removing needed organic matter, microorganisms, and minerals.
12. Tropical countries generally will not provide global public goods, such as the atmosphere or biosphere, in sufficient quantity, because many benefits spill over to other countries. Rich countries have an interest in providing funds to preserve tropical global common-property resources. However, because they may earn higher returns from free riding, users of global common property resources rarely agree to commit resources to manage global resources in the interest of all.
13. Developed and transitional countries produce a disproportional share of the world's carbon dioxide emissions that contribute to global warming. In the absence of drastic cuts in the annual global emissions of carbon dioxide, scientists expect increases in globally averaged surface temperatures in the 21st century that are several times these increases in previous centuries. The developing countries of the south are expected to be the major nations suffering from global warming, even though they produce only a small fraction of the globe's carbon emissions.
14. Market-based "green taxes" are more efficient than physical targets in reducing carbon emissions. Many economists think that international tradable emission permits are the economically optimal approach to levying "green taxes" on carbon emitters.
15. The Club of Rome's study, *The Limits to Growth*, concluded that the global economic system will collapse during the 21st century. However, a major shortcoming of the study is the assumption of exponential growth in industrial and agricultural needs and the arbitrary placement of nonexponential limits on the technical progress that might accommodate these needs.
16. Daly's impossibility theorem argues that there are not enough resources in the world to support the whole world at U.S.-style consumption levels.
17. Our continuous use of natural resources increases entropy, a measure of the unavailable energy in a thermodynamic system. Georgescu-Roegen argues that luxury production decreases the expected life span of the human species.

18. The World Bank subtracts resource depletion and environmental degradation from gross savings to get changes in wealth.
19. The Genuine Progress Index (GPI) is a comprehensive indicator of well-being that subtracts depletion of nonrenewable resources, long-term environmental economic damage, ozone depletion, loss of wetlands, and loss of farmlands from GDP. GPI advocates estimate that GPI per capita has fallen in the United States since 1976.
20. Lifeboat ethics, used as an argument for denying economic assistance to LDCs, is based on a number of flawed premises. Rich nations command a disproportional share of the world's resources, depend economically on poor nations, and have access to technical knowledge that can increase LDC productivity without decreasing their own.

TERMS TO REVIEW

- adjusted net savings
- arid land
- balance of trade
- biodiversity
- cartel
- Coase's theorem
- common property resources
- contingent valuation
- Dutch disease
- entropy
- environmental resources
- external diseconomies
- externalities (external economies and diseconomies)
- free riding
- Genuine Progress Indicator (GPI)
- global public goods
- global warming
- greenhouse gases
- green markets
- green taxes
- impossibility theorem (Daly)
- international tradable emission permits
- lifeboat ethic
- marginal abatement cost (MAC)
- marginal damage (MD)
- Montreal Protocol
- net primary productivity (NPP)
- Organization for Economic Cooperation and Development (OECD)
- proven reserves
- public goods
- resource curse
- sustainable development
- tragedy of the commons
- transactions costs

QUESTIONS TO DISCUSS

1. Indicate in broad outline the movements of *real* world crude petroleum prices in the last quarter of a century. What impact have these prices had on oil-importing LDCs?
2. Assume you are asked as an economic practitioner to analyze a patient with Dutch disease. Analyze the causes of the disease, describe the patient's symptoms, and prescribe an antidote to improve the patient's health. Also do the same for reverse Dutch disease.

3. What is meant by "sustainable development"? What implications should sustainable development have for investment criteria?
4. What are the market imperfections that contribute to environmental degradation?
5. What is meant by Hardin's "tragedy of the commons"? Identify environmental problems associated with this tragedy.
6. Theodore Panayotou contends that "Ultimately, excessive environmental damage can be traced to 'bad' economics stemming from misguided government policies and distorted markets." Discuss what Panayotou means by this statement, how accurate his view is, and what the policy implication of this view is. Give examples of misguided government policies and distorted markets, and the reasons for these policies and markets.
7. How do pollution levels vary with economic growth?
8. What decision-making rule minimizes social cost when pollution is involved? Assess the position that optimal level of pollution emission is zero.
9. Discuss and assess the methods for estimating the monetary values of pollution discharge and ecological degradation.
10. How does geography affect economic development in the tropics? What measures are needed to overcome these adverse effects?
11. Discuss the concept of global public goods, give examples of those that have environmental implications, and indicate the implications of global public goods for international funding programs. In your analysis, focus especially on global public goods in tropical countries.
12. What program would you design for global optimal greenhouse-gas abatement?
13. Assess the arguments for and against the use of international tradable emission permits in abating global greenhouse gases.
14. Discuss the role of green markets, green taxes, and green aid in reducing market imperfections concerning the environment and resource use. Discuss the possibility of using green markets, green taxes, and green aid in multilateral agreements.
15. How severely will a shortage of natural resources limit economic growth in the next half-century, especially in LDCs?
16. Indicate the adjustments the World Bank makes to arrive at adjusted net savings.
17. Indicate the adjustments made to compute the Genuine Price Indicator (GPI). How do these adjustments affect measures of net economic welfare? Evaluate GPI as a measure of economic welfare as an alternative to gross product per capita.

GUIDE TO READINGS

The World Bank (2004f) and subsequent *Global Economic Prospects* provide data on changes in petroleum prices.

Roemer (1985:234–252), Findlay (1985:218–233), and Corden and Neary (1982:825–848) examine Dutch disease in LDCs. The *IDS Bulletin* 17 (October 1986) has three articles dealing with Dutch disease:

The annual *Vital Signs* and *State of the World* by the Worldwatch Institute, and World Resources Institute, U.N. Environmental Program, and the U.N. Development Program (1994 and subsequent years) provide information on the relationship among the world's resources, environment, and population, and assess the sustainability of the planet. All sources, especially the last, discuss the global public goods of climate and biodiversity. Wilson (1989:108–110) and Miller, Reid, and Barber (1993) are sources on biodiversity. Schelling (1993:464–483), Poterba (1993:47–63), Weyant (1993:27–46), Nordhaus (1993:11–25), Morgenstern (1993:140–145), Mendelsohn, Nordhaus, and Shaw (1994:753–771), and Nordhaus and Boyer (2000) have economic analysis and policy recommendations concerning the problem of global climate change. Gore (1993) has analyses, tables, and figures on global warming of interest to lay readers. Barrett (1993:445–463) discusses the pitfalls associated with international environmental agreements. Kaul, Conceicao, Le Goulven, and Mendoza (2003) include essays on the concept and policy implications of global public goods.

The World Bank (1992i) analyzes the effect of environmental degradation on health and productivity in LDCs. Dasgupta (2001) examines how the natural environment affects human well-being.

Daly (1991:182–189), Solow (1993:179–187), and Goldin and Winters (1995) apply rigorous economic analysis to the question of sustainable development.

Dorfman and Dorfman's edited readings (1993) on the environment are excellent in discussing economic principles, policies, benefit–cost analysis and measurement, and a global analysis related to the environment. Other excellent survey sources on environmental economics include Kahn (1995), Field (1994), and Turner, Pearce, and Bateman (1993). Field (1994:84–105) analyzes the marginal conditions for optimal pollution abatement.

Panayotou (1993) has a clear and concise explanation of market distortions and policy failures that are the root causes of severe environmental degradation. Ghai and Vivian (1983) examine the management of environmental resources on the local level in LDCs.

Hardin (1968) has written the classic essay on the "tragedy of the commons." Randall (1993:144–161), has a comprehensive analysis of market imperfections that contribute to environmental degradation. Dales (1993:225–240) discusses the role of ownership and user rights in reducing environmental damage.

The *Journal of Economic Perspectives* (Fall 1994) has a concise summary of the literature on contingent valuation, including articles by Hanemann, Portney, and Diamond and Hausman.

Kaul, Conceicao, Le Goulven, and Mendoza (2003) and Ferroni and Mody (2002) define international public goods and discuss incentives for and management of their provision.

Feshbach and Friendly (1991) have an exhaustive survey of environmental degradation in the former Soviet Union.

Kamarck (1976) has written the definitive study on economic development in the tropics. Diamond (1999), discussed in Chapter 3, uses ecology and evolutionary

biology to explain the fates of sub-Saharan Africa and other human societies and their development.

Norgaard (1992) discusses the effect of environmental public goods and bads on investment criteria.

Does scarcity of natural resources place substantial limitations on future economic growth? Although the best-known analyses of the yes answer to this question are studies by Meadows et al. (1972, 1992), the arguments by Daly (1977) and Georgescu-Roegen (1971) are more compelling. On the negative side of this question is Simon (1979:26–30, 1981, 1986). Clear, concise expositions for the two sides, written for the lay reader, are Georgescu-Roegen (1971b) and Simon (1981a:33–41).

On ways to measure economic welfare that include environmental degradation and resource depletion, see World Bank (2003i:15–17), Daly, Cobb, and Cobb (1994), and Cobb, Glickman, and Cheslog (2001).

William Nordhaus and the Nobel laureate James Tobin (1972) were pioneers in proposing an indicator, Measure of Economic Welfare (MEW), that was a forerunner of GPI. MEW is GNP minus pollution and intermediate goods such as national security plus consumption of leisure and household production and other nonmarket activity.

14 Monetary, Fiscal, and Incomes Policy and Inflation

Monetary policy affects the supply of money (basically currency plus commercial bank demand deposits) and the rate of interest. **Fiscal policy** includes the rate of taxation and level of government spending. **Incomes policy** consists of anti-inflation measures that depend on income and price limitations, such as moderated wage increases.

The DC governments use monetary and fiscal policies to achieve goals for output and employment growth and price stability. Thus, during a recession, with slow or negative growth, high unemployment, and surplus capital capacity, these governments reduce interest rates, expand bank credit, decrease tax rates, and increase government spending to expand aggregate spending and accelerate growth. By contrast, DC governments are likely to respond to a high rate of inflation (general price increase) with increased interest rates, a contraction of bank credit, higher tax rates, decreased government expenditures, and perhaps even wage–price controls in order to reduce total spending.

The DCs often do not attain their macroeconomic goals because of ineffective monetary and fiscal tools, political pressures, or contradictory goals. Thus, we have the quandary during **stagflation** or inflationary recession (a frequent economic malady in the West during the 1970s and 1980s) of whether to increase aggregate spending to eliminate the recession or decrease spending to reduce inflation.

Countries may use incomes policy – wage and price guidelines, controls, or indexation, and exchange-rate fixing in the short run and stabilization in the medium-run – with moderate inflation (positive inflation, say, no more than 100 percent annually) and high inflation (for example, more than 5.9 percent monthly or 100-percent yearly price increase), as in Nicaragua, Peru, and Bolivia (1980–92), Argentina (1980–91), Brazil (1980–93), Poland (1982, 1990), Mexico (1983, 1986, 1994), Russia (1992–94, 1998), Ukraine, Kazakhstan, Romania, and Bulgaria (the early 1990s), and Angola and Democratic Republic of Congo (the 1990s, a period of war and political instability). According to Rudiger Dornbusch (1993:1, 13–29), **hyperinflation**, which occurred in postwar Germany, Austria, Hungary, Russia, and Poland in the early 1920s; postwar China, Greece, and Hungary in the mid- to late 1940s; and Yugoslavia (the late 1980s and early 1990s), Russia (1992–93), and Brazil (1992–93), corresponds roughly to an inflation of 20 percent monthly or 792 percent annually (Sachs and Larrain B 1993:729–39).

Scope of the Chapter

LDCs encounter even greater limitations than DCs in using monetary and fiscal policies to achieve macroeconomic goals. The first section of this chapter discusses some of the limitations of monetary policy in LDCs. Next, we look at the low tax rates in LDCs. The third section examines tax policy goals, including limitations LDCs face in using various taxes. Political constraints on implementing tax policies are mentioned in the fourth section. A fifth section, on government expenditures, indicates the limits of using spending policies to stabilize income and prices. The sixth section, on the problem of inflation, analyzes worldwide inflation since 1970; the explanations for inflation; their benefits and costs; and the relationship between inflation and growth. The seventh section examines banking in LDCs, and financial repression and liberalization. The eighth section looks at the capital market and financial system; the ninth at financial instability; and the tenth at Islamic banking.

Limitations of Monetary Policy

In DCs, central banks (like the Bank of England or the U.S. Federal Reserve) can increase the supply of money by buying government bonds, lowering the interest rate charged commercial banks, and reducing these banks' required ratio of reserves to demand deposits. The increased money supply and decreased interest rate should increase investment spending and raise output and employment during recession. And a decreased money supply should curtail investment, so that inflation is reduced.

The banking system, often limited in its ability to regulate the money supply to influence output and prices in DCs, is even more ineffective in LDCs. Usually, the money market in developing countries is externally dependent, poorly organized, fragmented, and cartelized (there will be more on this last point when we discuss financial repression later in this chapter).

1. Many of the major commercial banks in LDCs are branches of large private banks in DCs, such as Citigroup, Bank of America, J. P. Morgan Chase, or Barclay's Bank. Their orientation is external: They are concerned with profits in dollars, euros, pound sterling, or other convertible currency, not rupees, nairas, pesos, and other currencies that cannot be exchanged on the world market.
2. Many LDCs are so dependent on international transactions that they must limit the banking system's local expansion of the money supply to some multiple of foreign currency held by the central bank. Thus, the government cannot always control the money supply because of the variability of foreign exchange assets.
3. The LDC central banks do not have much influence on the amount of bank deposits. They generally make few loans to commercial banks. Furthermore, because securities markets are rarely well developed in LDCs, the central bank usually buys and sells few bonds on the open market.
4. Commercial banks generally restrict their loans to large and medium enterprises in modern manufacturing, mining, power, transport, construction, electronics

and telecommunications, and plantation agriculture. Small traders, artisans, and farmers obtain most of their funds from close relatives or borrow at exorbitant interest rates from local money lenders and landlords. Thus, LDC banking systems have less influence than DCs on the interest rate, level of investment, and aggregate output.

5. Transactions deposits (checking accounts) as a percentage of the total money supply are generally lower in LDCs than DCs. In the United States, they make up three-fourths of the total money supply, but, in most developing countries, the figure is less than half. Checks are not widely accepted for payment in LDCs. Generally commercial banks in LDCs control a smaller share of the money supply than in DCs (Tun Wai 1956:249–278; 1957:80–125).
6. The links between interest rate, investment, and output assumed in DCs are questionable in LDCs. Investment is not very sensitive to the interest rate charged by commercial banks, partly because a lot of money is lent by money lenders, landlords, relatives, and others outside the banks. Furthermore, because of supply limitations, increases in investment demand may result in inflation rather than expanded real output. The LDCs often face these limitations at far less than full employment because of poor management, monopolistic restraints, bureaucratic delay, and the lack of essential inputs (resulting from licensing restrictions on foreign exchange or domestic materials).

Tax Ratios and GNP per Capita

We have seen the monetary policy limitations in LDCs. Fiscal policy – taxation and government spending – comprises another tool for controlling income, employment, and prices. Tax policy also has other purposes – raising funds for public spending being the most obvious one. However, as the IMF economists Vito Tanzi and Howell Zee (2000:3) argue, the “paucity of reliable data [in many LDCs] makes it difficult for policy makers to assess the potential impact of major changes to the statutory tax system.” Still, we have enough information to make generalizations. The next four sections examine changes in tax revenues as an economy develops, factors to be considered in formulating tax policy, political obstacles to tax collections, and patterns of government spending in DCs and LDCs.

The concept of systematic state intervention to stimulate economic development has been a major part of the ideology of many developing countries. Yet, perhaps surprisingly, taxes as a percentage of GNP in LDCs are generally less than in DCs. According to Table 14-1, in 1995–97, tax (including social security) revenue as a percentage of GDP was 18.2 percent for developing countries and 37.9 percent for developed (OECD) countries. Data also indicate that the tax ratio for a given country increases with economic growth (Chelliah, Baas, and Kelly 1975:187–205; Tait, Gratz, and Eichengreen 1979:123–56; Perry 1980:89–93; Tanzi 1987:205–241).

The increase in tax ratio with GNP per capita is a reflection of both demand and supply factors – demand for **social goods** (collective goods such as education,

TABLE 14-1. Comparative Levels of Tax Revenue, 1985–1997 (percent of GDP)

	1985–87	1995–97
OECD countries[a]	**36.6**	**37.9**
America	30.6	32.6
Pacific	30.7	31.6
Europe	38.2	39.4
Developing countries[b]	**17.5**	**18.2**
Africa	19.6	19.8
Asia	16.1	17.4
Middle East	16.5	18.1
Western Hemisphere	17.6	18.1

[a] Excludes the Czech Republic, Hungary, Korea, Mexico, and Poland.
[b] Consists of a sample of 8 African countries, 9 Asian countries, 7 Middle Eastern countries, and 14 Western Hemisphere countries.
Source: Tanzi and Zee 2000:8.

highways, sewerage, flood control, and national defense) – and the capacity to levy and pay taxes.

Wagner's law, named for the 19th-century German economist Adolph Wagner, states that as real GNP per capita rises, people demand relatively more social goods and relatively fewer private goods. A poor country spends a high percentage of its income on food, clothing, shelter, and other essential consumer goods. After these needs have been largely fulfilled, an increased proportion of additional spending is for social goods (Wagner 1958:1–16).

Goals of Tax Policy

The power to tax is an important component of making a nation-state. The most important taxation goal in LDCs is to mobilize resources for public expenditure. Mexico and Brazil's federal tax collection as a percentage of GDP is only 12 percent compared to 19 percent in the United States and 35 percent in Sweden (Lyons 2004:A14). According to the IMF, the amount of these resources is determined by GNP per capita, the share of the mining sector in GNP, the share of exports in GNP, and tax policy. Part of this section looks at how tax policies affect public spending. In addition, we consider the impact of taxes on stability of income and prices. However, achieving these crucial taxation goals must be viewed in light of other goals, such as improved income distribution, efficient resource allocation, increased capital and enterprise, and administrative feasibility. The LDC governments must consider all of these goals when designing tax schemes to achieve rapid economic growth, to improve the lot of the poor, and to stabilize prices.

MOBILIZING RESOURCES FOR PUBLIC EXPENDITURE

A major reason that tax ratios increase with GNP per capita is that richer countries rely more heavily on taxes with greater elasticity (that is, percentage change in taxation/percentage change in GNP). An **elastic tax**, whose coefficient exceeds one, rises more rapidly than GNP. **Direct taxes** – primarily property, wealth, inheritance, and income taxes (such as personal and corporate taxes) – are generally more elastic than **indirect taxes** such as import, export, turnover, sales, value-added, and excise taxes (except for sales or excise taxes on goods purchased mostly by high-income groups).

In 1995–97, direct or income (corporate, including capital gains, and personal) taxes accounted for 33.1 percent of tax revenue in LDCs and 55.1 percent in DCs or high-income OECD countries (where revenue means central government current revenue except from social security taxes, a concept that understates these and subsequent figures when compared to *all* revenue from *all* levels of government). The average ratio of direct taxes to GDP is 5.2 percent in developing countries and 14.2 percent in high income countries. Another difference on direct taxes is that DCs raise three to four times more revenue from personal than corporate income tax, whereas LDCs raise more revenue from the corporate than the personal tax (Table 14-2).

Indirect taxes include consumption (excise, export, import, sales, and value-added) taxes (Table 14-2). Indirect taxes are 44.8 percent of tax revenue and 11.4 percent of GDP in DCs, and 66.9 percent of tax revenue and 10.5 percent of GDP in LDCs.

A major source of tax for LDCs is international trade, an indirect tax comprising 22.3 percent of the total – with import duties about 80–85 percent of trade taxes and the remainder export duties.[1] Other important indirect taxes – excise, sales, value-added, and other taxes on production and internal transactions – account for 38.2 percent of the total (see Table 14-2).

A major problem of economies in transition to a market economy, such as Russia and China, is to devise a tax system that will yield the revenue that was raised previously from the turnover tax (Chapter 11) and surpluses from government enterprises that set monopoly prices.

In recent decades, a number of LDCs have introduced the **value-added tax (VAT)**, a tax on the difference between the sales of a firm and its purchases from other firms. Indeed, a majority of LDCs use the VAT (or a VAT-like tax) (Tanzi and Zee 2000:21), the benefit of which is discussed later.

Although personal income taxes rarely comprise more than 7 percent of GDP in LDCs, they often account for 10–20 percent of GDP in the DCs. In most DCs, the income tax structure is **progressive**, which means that people with higher incomes pay a higher percentage of income in taxes. For example, in 2003, a married couple filing jointly with two children in the United States earning $25,000 or $50,000 would pay no tax; one earning $75,000 would pay $776 (1.0 percent); one earning $100,000 would pay $7,020 (7.0 percent); one earning $150,000 would pay $20,580

[1] Loewy (2002) shows the optimal path that nations follow as they substitute income taxes for tariffs as they develop.

TABLE 14-2. Comparative Composition of Tax Revenue, 1985–1997 (In percent of GDP)

	1985–87								1995–97							
	Income taxes			Consumption taxes					Income taxes			Consumption taxes				
		Of which			Of which					Of which			Of which			
	Total	Corporate	Personal	Total	General	Excises	Trade	Social security	Total	Corporate	Personal	Total	General	Excises	Trade	Social security
OECD countries[a]	**13.9**	**2.8**	**11.3**	**11.3**	**6.0**	**3.8**	**0.7**	**8.8**	**14.2**	**3.1**	**10.8**	**11.4**	**6.6**	**3.6**	**0.3**	**9.5**
America	14.0	2.5	11.4	7.6	3.4	2.2	0.6	5.8	15.4	3.0	12.3	7.0	3.7	2.0	0.3	6.1
Pacific	17.1	3.9	13.2	7.5	2.3	3.7	0.8	2.8	16.3	4.3	11.4	8.4	4.3	2.6	0.6	3.5
Europe	13.3	2.7	11.0	12.4	6.8	4.0	0.7	10.1	13.7	2.9	10.6	12.4	7.3	4.0	0.3	10.8
Developing countries[b]	**4.9**	**2.8**	**1.7**	**10.3**	**2.3**	**2.6**	**4.2**	**1.2**	**5.2**	**2.6**	**2.2**	**10.5**	**3.6**	**2.4**	**3.5**	**1.3**
Africa	6.3	2.9	3.1	11.7	3.2	2.3	5.7	0.4	6.9	2.4	3.9	11.6	3.8	2.3	5.1	0.5
Asia	5.7	3.5	2.1	9.5	1.9	2.5	3.6	0.1	6.2	3.0	3.0	9.7	3.1	2.2	2.7	0.3
Middle East	4.7	4.3	1.0	9.1	1.5	2.4	4.4	1.2	5.0	3.2	1.3	10.3	1.5	3.0	4.3	1.1
Western Hemisphere	3.7	1.8	1.0	10.6	2.6	3.0	3.7	2.4	3.7	2.3	1.0	10.6	4.8	2.3	2.6	2.3

[a] Excludes the Czech Republic, Hungary, Korea, Mexico, and Poland.
[b] A sample of 8 African countries; 9 Asian countries; 7 Middle Eastern countries; and 14 Western Hemisphere countries.

Source: Tanzi and Zee 2000:13.

(13.7 percent), and one earning $200,000 would pay $35,845 (17.9 percent). Many people feel the progressive tax is just – that those with higher incomes should bear a larger tax burden, as they have a much greater ability to pay. Moreover, a progressive income tax has an elasticity greater than one, so a rising GNP pushes taxpayers into higher tax brackets. Let us examine the personal income tax and others in light of overall tax policy goals before discussing some of the administrative and political reasons why LDCs rely so little on the individual income tax.

STABILITY OF INCOME AND PRICES

As we said earlier, developed countries use fiscal and monetary policies to achieve macroeconomic goals of economic growth, employment, and price changes. When there is high unemployment, the government can increase spending and decrease taxes to increase aggregate demand and employment. In times of inflation, government can reduce spending and increase taxes to decrease aggregate demand and diminish price rises.

At times, fiscal policy has a limited effect in stabilizing employment and prices in DCs, and, not surprisingly, it is even less effective in LDCs. There are several reasons for this ineffectiveness.

First, as indicated earlier, tax receipts as a share of GNP in LDCs are typically smaller than in DCs.

Second, LDCs, relying more on indirect taxes (leaving aside for now the value-added tax), have less control than DCs over the amount of taxes they can raise. Personal and corporate income taxes can generally not be used to stabilize aggregate spending, because they comprise only 5.2 percent of GDP in LDCs. Furthermore, LDC indirect taxes are subject to wide variation – especially taxes on international trade, which frequently are affected by sharp fluctuations in volume and price (see Chapter 4). In the 1970s, Zaire raised about four-fifths of its revenue from export taxes. However, when the price of its leading export, copper, fell by 40 percent from 1974 to 1975, export receipts dropped 40 percent, too, resulting in a 36-percent decline in export tax revenue and a 19-percent decline in total government revenue (World Bank 1980i).

Third, prices and unemployment are not so sensitive to fiscal policy in LDCs as in DCs. Chapter 9 details (and we reiterate here) why expansionary fiscal policies (increased government spending and decreased tax rates) may have only a limited effect in reducing unemployment in LDCs: (1) there are major supply limitations, such as shortages of skills, infrastructure, and efficient markets; (2) creating urban jobs through expanded demand may result in more people leaving rural areas; (3) employment may not rise with output because of factor price distortions or unsuitable technology; and (4) government may set unrealistically high wages for educated workers. On the other side of the coin, although contractionary fiscal policies may reduce Keynesian demand–pull inflation, they are not likely to reduce cost–push, ratchet, and structural inflation (discussed later).

Generally, tax policy, as monetary policy, is a very limited tool for achieving income and price stability.

IMPROVING INCOME DISTRIBUTION

The progressive personal income tax takes a larger proportion of income from people in upper-income brackets and a smaller proportion from people in lower-income brackets. Thus, income distribution after taxes is supposed to be less unequal than before taxes.

Excise taxes or high import tariffs on luxury items redistribute income from higher-income to lower-income groups. These taxes are especially attractive when the income would otherwise be spent on lavish living and luxury imports.

The broad-based sales tax is usually levied as a fixed percentage of the price of retail sales. The sales tax, used widely by state and local governments in the United States, and the value-added tax, a major tax source of the European Union, is usually **regressive**, in that people with lower incomes pay a larger percentage of income in taxes. Because the poor save a smaller proportion of income than the rich, a LDC government wanting to use the tax system to reduce income inequality should not rely much on a value-added or general sales tax. However, exempting basic consumer goods, such as food and medicine can modify the regressive feature of the tax. But this modification is often opposed by treasury officials because it reduces revenues substantially and is costlier to administer.

Two experienced IMF economists, however, favor sales, excise, and value-added taxes, because of their more favorable effect on efficiency and spurring capital and enterprise. For Tanzi and Zee (2000:9): "Since the labor tax is equivalent to a tax on consumption . . . the income tax gives rise to an additional distortion – on savings – that is absent from the consumption tax."

EFFICIENCY OF RESOURCE ALLOCATION

One goal of a tax system, then, is to encourage efficient use of resources or at least to minimize inefficiencies. Export taxes reduce the output of goods whose prices are determined on world markets. Such taxes shift resources from export to domestic production with a consequent loss of efficiency and foreign exchange earnings (Due and Friedlaender 1981:548).

Import duties raise the price of inputs and capital goods needed for agricultural and industrial exports and domestic goods. The price of locally produced goods requiring imported inputs increases, altering consumer choice.

An economy maximizes output and optimizes resource efficiency when price equals marginal cost. If government raises revenue from indirect taxes, price cannot equal marginal cost in all industries. However, indirect taxes can be levied at uniform rates on all final goods and exemptions. In this way, price will be proportional to marginal costs in all industries, and a minimum distortion of consumer choice will occur. Essentially, a sales tax distorts efficiency least if it is broad-based, that is, if it applies to the final sale of producer goods as well as to consumer goods and services. A uniform tax rate based on value added has a similar effect to the sales tax on resource allocation and tax incidence, but it is usually more difficult for LDC governments to administer (McLure 1975:339–349; Due 1976:164–186).

INCREASING CAPITAL AND ENTERPRISE

The LDC governments can mobilize saving through direct taxes (on personal income, corporate profits, and property), taxes on luxury items, and sales and value-added taxes. These taxes result in a higher rate of capital formation if government has a higher investment rate than the people taxed. Moreover, the state can use taxes and subsidies to redistribute output to sectors with high growth potential and to individuals with a high propensity to save (see Nafziger's supplement [2006b]).

The government can use tax policy to encourage domestic and foreign entrepreneurship. Tax revenues can be used for transport, power, and technical training to create external economies for private investment. Government development banks, development corporations, and loans boards can lend capital to private entrepreneurs. **Fiscal incentives** to attract business, especially from abroad, include tax holidays (for the first few years of operation), income averaging (where losses in one year can be offset against profits in another), accelerated depreciation, import duty relief, lower tax rates for reinvested business profits, and preferred purchases through government departments. The LDC governments may limit these incentives to enterprises and sectors that are of high priority in their development plan.

Surveys suggest that fiscal incentives have, at best, only a slight effect on the amount of investment. Moreover, subsidized investment may crowd out existing firms or firms that might have been willing to invest without subsidy. Using tax incentives successfully requires careful economic planning, skillfully structuring taxes, competent tax administration, quick decisions on applications, and no political favoritism (Heller 1975:5–28; Shah and Toye 1978:269–296; Tanzi and Zee 2000:24–29).[2]

Is there a conflict between the redistributive effect of the progressive income tax and increased capital accumulation? As Nafziger's supplement (2006b) indicates, profits are a major source of new capital formation. Because, for the successful businessperson, expansion takes precedence over the desire for higher consumption, taxes on profits affect consumption far more than saving. Nicholas Kaldor (1975:33) even argues that progressive taxation, by curbing luxury spending that distorts the investment pattern, may even stimulate capital accumulation. Before progressive taxation, too much capital is invested in industries catering to the rich. After taxation, some investment shifts from luxury production to necessities. Thus, although there are conflicts between income redistribution and capital accumulation, they are probably less than is commonly believed in LDCs.

According to Alberto Alesina and Dani Rodrik (1994:465–490), the conflict does not occur because lower disposable (after-tax) income inequality causes lower savings, but because of pressures for redistribution by the majority of the population when incomes and wealth are highly unequal. Alesina and Rodik contend that any conflict results from the fact that a greater inequality of wealth and income contributes to increased political pressures for redistribution and higher rates of taxation on holders of capital and land, and the ensuing lower rates of growth.

[2] Global competition to attract international businesses and capital has put pressure on countries to reduce tax rates (Economist 2000a:S5).

ADMINISTRATIVE FEASIBILITY

Some developed countries use income taxes (especially the progressive personal tax) to mobilize large amounts of resources for public expenditures, improve income distribution, stabilize income and prices, and prevent inefficient allocation that comes from a heavy reliance on indirect taxes. However, few LDCs rely much on income taxes, because they have trouble administering them.[3]

The following conditions must be met if income tax is to become a major revenue source for a country: (1) existence of a predominantly money economy, (2) a high standard of literacy among taxpayers, (3) widespread use of accounting records honestly and reliably maintained, (4) a large degree of voluntary taxpayer compliance, and (5) honest and efficient administration. Even DCs, to say nothing of LDCs, have trouble fulfilling these conditions (Goode 1962:157–171; Tanzi 1966:156–162). Tanzania, under President Julius K. Nyerere from 1974 to 1985, was probably the only African country that used its tax system to redistribute income to low-income classes.

Taxes on international trade are the major source of tax revenue in LDCs, especially for low-income countries with poor administrative capacity. Import duties can restrict luxury goods consumption, which reduces saving and drains foreign exchange.[4] However, the government can exempt the import of capital goods and other inputs needed for the development process. Export taxes, by contrast, can substitute for income taxes on (commercial) farmers, as, for example, in Ghana.

Exports and imports usually pass through a limited number of ports and border crossings. A relatively small administrative staff can measure volume and value and collect revenue. To be sure, traders may underinvoice goods or seek favors or concessions from customs officials. However, these problems are not so great as those encountered with an income, sales, or value-added tax.

The LDCs may be able to administer excise taxes if the number of producers is small. Rates are usually specific rather than percentage of value to simplify collection. The principal excises in LDCs, just as in DCs, are motor fuel (often for road finance), cigarettes, beer, and liquor. However, as the economy develops, introducing more excise taxes complicates administration and discriminates against consumers of taxed items.

The inadequacies of segmented excise taxes have led a number of developing countries to introduce sales taxes. In the poorest countries, using a retail tax is impossible. Enumerating, let alone collecting from, the numerous, very small, uneducated peddlers, traders, and shopkeepers is the major difficulty. Thus, a number of African countries have levied a sales tax on manufacturers, where numbers are fewer and control is easier. But this tax discriminates among products, favors imports, and

[3] Given their consciousness concerning how much the U.S. Internal Revenue Service and the Canadian personal income tax service emphasize tax enforcement and penalties, many students from the U.S. and Canada are surprised to learn that the two countries have some of the highest rates of personal income tax compliance in the world.

[4] Note, however, some of the unintended side effects of a tax on luxury items (Chapter 17).

interferes with the allocation of functions by production stage. Other countries restrict the sales tax to large retail firms, which also introduces distortions and inequities (Due and Friedlaender 1981:539–548).

INCREASING THE STATE'S CAPACITY TO COLLECT TAXES: THE VALUE-ADDED TAX

Chapter 4 mentions the importance of an LDC raising revenue and providing basic services. In weak or failing low-income countries, especially those facing internal conflict, such as several in sub-Saharan Africa, the state does not provide minimal functions of defense, law and order, health and education, and macroeconomic stability. Countries whose fiscal positions are deteriorating and can no longer supply basic functions risk a loss of legitimacy. Governments need a social compact with their citizens to provide basic needs in return for tax contributions according to the ability to pay.

Replacing widely evaded direct taxes, such as personal income taxes, with indirect taxes is a way to increase state legitimacy and raise tax revenue. Several LDCs have used **value-added taxes (VAT)**, a tax on the difference between the sales of a firm and its purchases from other firms, to raise a substantial fraction of revenues. Chile and South Korea both began using the value-added tax in the 1970s; Chile raises almost 40 percent and South Korea about 25 percent of their tax revenues from VAT. Colombia, Argentina, Uruguay, Mexico, Peru, Haiti, Honduras, Turkey, and Indonesia mobilize one-sixth to one-fourth of their tax moneys from VAT. Other LDCs using VAT (or a VAT-like tax) include Cote d'Ivoire, Kenya, Mauritius, South Africa, Zambia, the Philippines, Sri Lanka, Thailand, Egypt, Jordan, Morocco, Pakistan, Tunisia, Bolivia, Costa Rica, Dominican Republic, El Salvador, Nicaragua, Panama, and Venezuela (Tanzi and Zee 2000:22). Stanford University's Ronald McKinnon (1993:134–135) recommends that former socialist countries such as Russia, which have relied heavily on enterprise taxes, adopt the VAT. VAT, which is less difficult to administer, permits the central government to tax all forms of enterprise income uniformly.

The appeals of the value-added tax are simplicity, uniformity, the generation of buoyant revenues (from a high income elasticity), and the enabling of a gradual lowering of other tax rates throughout the system (for example, the lowering or elimination of the distortions of a **cascade tax**). One example of a cascade is the simplest sales tax that takes a straightforward percentage of all business turnover, so that tax on tax occurs as a taxed product passes from manufacturer to wholesaler to retailer (Tait 1988; Weidenbaum and Christian 1989:1–16).

The most frequently used approach for levying VAT is the subtractive-indirect (the invoice and credit) method. Under this approach, the firm issues invoices for all taxable transactions, using these invoices to compute the tax on total sales. But the firm is given credit for VAT paid by its suppliers. To a substantial degree, VAT is self-enforcing, as the firm has an incentive to present invoices to subtract VAT on purchases from VAT on sales; these invoices provide a check on VAT payments

at earlier stages, and reduce leakage from cheating or corruption. In Turkey, an additional cross-match is by consumers, who with receipts for purchases, can offset a proportion of VAT paid on their retail purchases against their income-tax liability (Tait 1988; Weidenbaum and Christian 1989:1–16).

But VAT faces administrative problems, especially among the numerous retailers in low-income countries. The cost of compelling compliance among these retailers, who may pay for their purchases out of the till and keep no records of cash transactions, are substantial relative to the tax collected. LDCs also face pressures for multiple rates (lower rates on essential goods like food, higher rates on luxury goods, and differential geographical rates) and exemptions (for small traders, for services, and for activities in the public interest such as postal services, hospitals, medical and dental care, schools, cultural activities, and noncommercial radio and television). Foreign trade adds a further complication. Many LDCs fully rebate VAT paid in the exporter's domestic market where the importing country also levies VAT rates.

In India, Finance Minister Jaswant Singh tried several times between 2001 and 2003 to reform the tax system by introducing VAT to replace distortions from the labyrinth of taxes, including cascading taxes. Manufacturers, who rarely can evade taxes, tended to support the VAT's application of taxation to more stages of processing and sales. However, protests by traders and shop owners in the capital, New Delhi, and the key electoral states of Rajasthan and Madhya Pradesh influenced the major party in the ruling coalition, the Bharatiya Janata Party, to apply the brakes to the tax (Economist 2003f:36.)

Despite the distorting effect on capital, enterprise, and resource allocation, many low-income countries may have to levy taxes simpler to administer such as corporate taxes; taxes on international trade, where goods pass through a limited number of ports and border crossings; taxes on sales by manufacturers, where numbers are fewer and control is easier; or taxes on luxuries. Many of these countries lack the capability to administer, collect, audit, monitor, and hear appeals from value-added taxpayers and evaders (Tait 1988; Weidenbaum and Christian 1989:1–16).[5]

Vito Tanzi and Howell Zee (2000:14–15) contend that

> The important policy issue for developing countries is not so much in determining the optimal tax mix as in (1) spelling out clearly the objective(s) to be achieved by any contemplated shift in the mix, (2) assessing the economic consequences of the shift – in both efficiency and equity terms – in the most objective manner possible, and (3) implementing compensatory – possibly nontax (e.g., expenditure) – measures, if those who are being made worse off by the shift are from the poorer deciles.

Political Constraints to Tax Policy

Politics may be as obstructive as administration in using direct taxes in LDCs. Economic and political power is likely to be concentrated among the richer few so

[5] VAT also has an immediate inflationary effect on the economy.

that rich and influential taxpayers can prevent tax reform that affect them adversely. Property owners and the upper classes often successfully oppose a progressive income tax or sizable property tax, introduce tax loopholes beneficial to them, or evade tax payments without penalty.

The United States has a reputation for less legal tax avoidance and illegal evasion than most of the third world. However, a Brookings Institution study indicates that, even in the United States, taxes as a percentage of income remain nearly constant for virtually all income levels because of tax loopholes and the effect of indirect taxes. Furthermore, the U.S. Internal Revenue Service (IRS) assumes that the average U.S. citizen is rather resistant to taxation. Tax evasion is low because of the high probability and serious consequences of being caught (Pechman and Okner 1974; Tanzi 1975:234–236).

Tax collection in an LDC depends not only on the appropriate tax legislation, but also, more important, on administrative capability and political will. A noted tax authority wrote that

> In many underdeveloped countries the low revenue yield of taxation can only be attributed to the fact that the tax provisions are not properly enforced, either on account of the inability of the administration to cope with them, or on account of straightforward corruption. No system of tax laws, however carefully conceived, is proof against collusion between the tax administrators and the taxpayers; an efficient administration consisting of persons of high integrity is usually the most important requirement for obtaining maximum revenue, and exploiting fully the taxation potential of a country. (Kaldor 1963:23)

Expenditure Policy

Many Afro–Asian leaders after independence were convinced that colonialism meant slow economic growth, largely as the result of laissez-faire capitalism (implying a minimum of government interference into the economy). These leaders focused populist and anti-imperialist sentiments in these countries into an ideology of African or Asian socialism. This socialism, frequently misunderstood by outsiders, usually did not imply that government was to own a majority of land and capital. Nor did it mean that tax revenue was a large proportion of GNP. As we indicated earlier, Wagner's law of demand and administrative limits on tax collections restricted the social goods sector in most of these economies.

What socialism in the third world often meant was systematic planning (see Chapter 18) by the state to assure a minimum economic welfare for all its citizens. Yet World Bank statistics indicate that LDC governments spend a relatively small percentage of GNP on health, welfare, social security, and housing (in low-income countries, the 1992 expenditures on these categories were 1.2 percent of GNP and 6.7 percent of the central government budget; in middle-income countries, 5.8 percent of GNP and 24.5 percent of the budget; and in high-income countries, 15.6 percent of GNP and 49.6 percent of the budget), and a relatively large share on education, electricity,

gas, water, transport, communication, and training programs (Table 14-3). For some middle-income countries such as Brazil, civil-service benefits have been excessive, requiring a trimming of the pensions of public-sector workers to contain debt (Economist, December 20, 2003, p. 48).

Doubtless in countries where a large part of the population is poor, welfare and social security payments to bring everyone above the poverty line not only would undermine work incentives but also would be prohibitively expensive (see Chapter 6). Moreover, as we have said earlier, infrastructure and education are important investments creating external economies in early stages of development (Musgrave and Musgrave 1980:813).

Military expenditures have a high foregone cost in resources for social programs in LDCs. In 1990–92, low-income countries spent 2.4 percent of GDP on defense (Ethiopia 12.4 percent and Mozambique, then fighting rebels supported by white-ruled South African–supported rebels, 11.9 percent[6]), an amount in excess of spending for health, education, housing, welfare, amenities, and social security. Low-income countries spent 10.4 percent of import expenditures on armaments, and have 40 percent more armed forces (generally with above-average education) than teachers (U.N. Development Program 1994:47–60, 170–171).

Can government vary spending to regulate income, employment, and prices? Sound investment projects in education, power, transport, and communication are difficult to prepare and require a long lead time. Furthermore, as indicated, macroeconomic variables are not so sensitive to demand management in LDCs as in DCs. Spending policy, just as monetary and tax policies, is a limited instrument for influencing economic growth and price stability.

Inflation

ACCELERATED LDC INFLATION FROM THE 1970S TO THE EARLY 1990S

Inflation is the rate of increase in the general level of prices, measured by the **consumer price index (CPI)**, the average price of a basket of goods and services consumed by a representative household, or by the **GDP deflator**, which compares the average price of the GDP basket today and in a base period. During the 1950s and the 1960s, economists considered inflation as a phenomenon affecting individual countries in isolation. To be sure, inflation in Latin America was 22 percent per year from 1960 to 1970. But if we exclude the 41 percent annual inflation rate of the contiguous region of Brazil–Uruguay–Argentina–Chile, Latin America's annual rate for the decade was only 5 percent, comparable to that of Afro–Asia, that is, 6 percent (see Table 14-4). However, LDC annual inflation accelerated through the early 1990s, increasing from 9 percent in the 1960s to 26 percent in the 1970s and to 76 percent from 1980 to 1992,

[6] The Economic Commission for Africa (1989) estimates that the nine Southern African Development Coordination Conference (SADCC) states – Angola, Botswana, Lesotho, Malawi, Mozambique, Tanzania, Swaziland, Zambia, and Zimbabwe – lost $60 billion (or one-fourth) of their gross domestic product from South Africa's destabilization.

TABLE 14-3. Central Government Current Expenditure by Expenditure Categories and Current Expenditure as Percentage of GNP 1992 (classified by country income categories)

	Percentage of expenditure						
	Defense	Education	Health	Housing, amenities, social security, and welfare	Economic services[a]	Other[b]	Total expenditure as percentage of GNP[c]
Low-income countries	13.8	4.8	2.1	4.6	21.2	53.5	18.5
Middle-income countries	9.5	13.2	5.1	19.4	16.0	36.8	23.8
High-income countries	14.9	5.0	14.2	35.4	6.8	23.7	31.6

Note: Percentages are based on countries with information. Forty percent had data among low-income countries, 48 percent among middle-income countries, and 95 percent among high-income countries. Countries in each country income category are weighted by population.

[a] *Economic services* comprise expenditure associated with the regulation, support, and more efficient operation of business, economic development, redress of regional imbalances, and creation of employment opportunities. Activities include research, trade promotion, geological surveys, and inspection and regulation of particular industry groups. Ibid., p. 236.

[b] *Other* covers general public services, interest payments, and items not included elsewhere; for some economies other also includes amounts that could not be allocated to other components, or adjustments from accrual to cash accounts. World Bank 1994i:236.

[c] Excludes consumption expenditure by state and local governments. Central government expenditure includes government's gross domestic investment and transfer payments. Ibid., p. 236.

Source: World Bank 1994i:162–163, 180–181.

before falling to 16 percent from 1992 to 2003, perhaps because of increased competition from globalization. Most of the increase came from rapid inflation in Latin America, 47 percent annually in the 1970s and 230 percent from 1980 to 1992! The DC inflation rates, while increasing from 4 percent in the 1960s to 9 percent in the 1970s, fell to 4 percent from 1980 to 1992 and 2 percent from 1992 to 2003.

Instability in the international economy during most of the 1970s exacerbated inflation. In 1971, the post–1945 Bretton Woods system of fixed exchange rates broke down. It was replaced by a floating exchange rate system, under which DCs experienced large swings in exchange rates. H. Johannes Witteveen, when president of the International Monetary Fund in 1975, argued that exchange fluctuations in an imperfectly competitive world exacerbated inflation by increasing prices in countries with a depreciating currency but not decreasing prices in countries with an appreciating currency. Poor world harvests in 1972 to 1973 increased food prices, wage rates, and cost–push inflation substantially in 1972 to 1974. Higher oil prices also pushed up costs and prices, especially in industry and power, in 1973 to 1975. Worldwide inflation remained high between 1975 and 1978, a period when, according to a Brookings Institution study, the effect of oil prices was not important. Inflation in the DCs radiated out to the LDCs through trade links (Witteveen 1975:108–14; Cline and Associates 1981; U.N. Department of International Economic and Social Affairs 1981:37–39). Yet, from 1978 through the end of the 1980s (as in the 1960s), inflation rates varied too widely among LDCs (note the differences between Latin America and Afro–Asia in Table 14-4) to attribute to a common cause. We cannot blame Paraguay's rapid inflation in the early 1950s; Brazil's, Uruguay's, Chile's, and Bolivia's in the decade before 1974; or Brazil's, Argentina's, Peru's, Bolivia's, and Israel's inflations in the 1980s and early 1990s at more than 100 percent yearly on international instability. Let us examine several causes in the following sections.

DEMAND–PULL INFLATION

The next seven sections consider the (1) demand–pull, (2) cost–push, (3) ratchet, (4) structural, (5) expectational, (6) political, and (7) monetary explanations for inflation, and what government can do to reduce them.

Demand–pull inflation results from consumer, business, and government demand for goods and services in excess of an economy's capacity to produce. The International Monetary Fund, when financing the international payments deficit for a rapidly inflating LDC, requires contractionary monetary and fiscal policies – reduced government spending, increased taxes, a decreased money supply, and a higher interest rate – to curb demand. Sometimes these demand restrictions do not moderate inflation. The LDC government may have to decrease substantially the employment rate and real growth to reduce the inflation rate. As a result, many LDC economists question the importance of demand–pull inflation and look for other causes of inflation.

TABLE 14-4. Inflation Rates in Developed and Developing Countries, 1960–2003

	Average annual rate of inflation[a] (percent)			
Country groups	**1960–70**	**1970–80**	**1980–92**	**1992–2003**
Developed countries	4.3	9.1	4.3	1.7
Developing countries	8.9	26.2	75.7	16.5
Latin America	22.5	46.7	229.5	30.9
Afro-Asia	6.1	13.9	8.9	14.9
Developing countries by region				
Latin America	22.5	46.7	229.5	30.9
Brazil	46.1	38.6	370.2	72.8
Excluding Brazil	9.3	50.9	157.2	10.5
Africa	5.3	14.2	14.7	21.3
Asia	6.4	13.9	7.6	6.5
India	7.1	8.4	8.5	7.3
Excluding India	5.3	16.2	7.2	6.2
Middle East & Turkey	2.5	17.0	10.1	25.4

Note: China is not included in 1960–70 for developing countries, Afro-Asia, and Asia. In 1960–2003, developing countries include developing Europe. Central Asia from the former Soviet Union is included among developing countries but not Afro-Asia in 1980–2003. The Middle East (with Turkey) is included in the Afro-Asian total.

[a] GNP deflator.

Sources: World Bank 1981i:134–35, 181; World Bank 1988i:222–23; World Bank 1994i:162–63; IMF 2001d:72; IMF 2002d:178–185.

COST–PUSH INFLATION

The presence of cost–push and structural (supply-side) inflationary pressures may explain why a contraction in demand may cause unemployment and recession rather than reduce inflation. **Cost–push inflation** means prices increase even when demand drops or remains constant, because of higher costs in imperfectly competitive markets.

Labor unions may force up wages although there is excess labor supply – particularly by applying political pressure on government, the major employer and wage-setter in the modern sector. Higher food prices also may come into play, as during the poor worldwide harvests in 1972 to 1973. If food costs more, workers may press for higher wages.

Similarly, large businesses may increase prices in response to increased wage and other costs, even though demand for their products does not increase. Because of labor's and business's market power, economists sometimes label cost–push inflation "administered price" or "seller's" inflation.

Economists may blame rising costs from demand–pull on cost push. Increased aggregate demand for finished goods and services expands business's derived demand for raw materials and labor. When their short-run supply is inelastic, costs go up before finished-good prices rise. Despite appearances, here excess demand, not cost, is inflation's cause (Fry 1988:330–331).

RATCHET INFLATION

A ratchet wrench only goes forward, not backward. Analogously prices may rise but not go down. Assume aggregate demand remains constant but demand increases in the first sector and decreases in the second. With **ratchet inflation**, prices rise in the first sector, remain the same in the second, and increase overall.

The LDC governments could use antimonopoly measures and wage and price controls to moderate cost–push and ratchet inflationary pressures. Yet they may lack the political and administrative strength to attack monopolies and restrain wages. Several LDCs have instituted price controls but usually with mixed results. Price controls should be limited to highly imperfect markets, rather than competitive markets, where these controls cause shortages, long lines, and black markets. In addition, some business firms circumvent price controls by reducing quality, service, or in some instances quantity (for example, the number of nuts in a candy bar). Most LDC governments lack the administrative machinery and research capability to obtain the essential data, undertake the appropriate analysis, change price ceilings in response to movements in supply and demand in thousands of markets, and enforce controls.

STRUCTURAL INFLATION: THE CASE OF LATIN AMERICA

Some Latin American economists, especially from the U.N. Economic Commission for Latin America (ECLA), criticize the orthodox prescriptions of the International Monetary Fund for attaining macroeconomic and external equilibrium (see Chapters 16, 17, and 19). These economists also argue that structural rigidities, not demand–pull, cost–push, or ratchet inflation, cause rapid inflation in Latin America. Structural factors include the slow and unstable growth of foreign currency earnings (from exports) and the inelastic supply of agricultural goods. A price rise from these factors is termed structural inflation.

Sluggish growth in foreign exchange earnings relative to import demand occurs because a disproportional share of exports in Latin America are primary products (food, raw materials, minerals, and organic oils and fats) other than fuels (see Chapter 4). The slow growth in demand for these primary exports decreases the country's terms of trade, that is, the ratio of its export prices to its import prices. Government restricts imports to adjust to foreign exchange shortages. Import demand, which grows with national income, exceeds import supply, and inflation sets in. Even expanding the supply of **import substitutes** (domestic production replacing imports) increases prices and input costs above import prices. The slow growth of export income necessitates frequent exchange-rate devaluation, which increases import prices. In addition export sluggishness keeps export tax revenues down, reducing government saving and further increasing inflation.

Food output is especially unresponsive to price rises – a second structural rigidity in LDC economies. This supply inelasticity is largely a result of defective land tenure patterns, such as concentrated land ownership, poor production incentives, and insecure tenancy.

All of these factors – deterioration in terms of trade, cost of import substitution, devaluation, and rise in agricultural prices – initiate cost–push inflation. Structuralists,

many of whom support the financially repressive policies discussed below, contend that contractionary monetary and fiscal policies, such as those advised by the International Monetary Fund, depress the economy and exacerbate political discontent without going to the heart of the problem, the need for fundamental structural change – land reform, expanding the industrial sector, antimonopoly measures, and improved income distribution (much of this section's analysis is based on de Oliveira Campos [1964:129–137]).

Critics of the structuralists argue that the pressure on food supplies is not peculiar to Latin America. In fact, the United Nations and the U.S. Department of Agriculture indicate both total and per-capita food production grew about as rapidly in Latin America in the 1970s and 1980s as in any other region of the developing world (Figure 7-1 and U.N. Department of International Economic and Social Affairs 1981:28).

In addition, Latin American export growth has not been sluggish. From 1970 to 1993, the real value of exports from Latin America grew 3.6 percent annually, its terms of trade increased slightly (0.21 percent annually), and the real purchasing power of export earnings increased 3.8 percent yearly.[7]

Moreover, when export growth is sluggish, the cause is not structural but an overvalued domestic currency relative to foreign exchange. Assume the market-clearing exchange rate is 50 pesos per dollar and the actual exchange rate 25 pesos per dollar. The farmer selling $1,000 worth of sugar cane on the world market receives only 25,000 pesos at the existing exchange rate rather than 50,000 pesos at an equilibrium rate. Devaluing the domestic currency to reflect the market exchange rate would spur farmers and other producers to export.

All in all, cost–push inflation generated by import substitution, decline in the terms of trade, and inelastic agricultural supplies are of limited use in explaining the chronic high rates of inflation found in many Latin American countries.

EXPECTATIONAL INFLATION

Inflation gains momentum once workers, consumers, and business people expect it to continue. **Inflationary expectations** encourage workers to demand higher wage increases. Business managers expecting continued inflation grant workers' demands, pass cost increases on to consumers, buy materials and equipment now rather than later, and pay higher interest rates because they expect to raise their prices. Lenders demand higher interest rates because they expect their money to be worth less when the loan is repaid, after prices have risen. Consumers purchase durable goods in anticipation of higher future prices. Thus, once started, expectations can engender an inertia that makes it difficult to stop an inflationary spiral (Fusfeld 1976:332; Heilbroner and Galbraith 1990:398–399; Case and Fair 1996:761–762).

A major justification for wage–price controls is to break the vicious circle of inflationary expectations among workers, consumers, and business people. But, as noted

[7] Computed from IMF (1988:59–137); IMF (1994:119–186). See also Cline and Associates (1981) and the discussion of the long-run terms of trade in Chapter 17.

earlier, few LDC wage–price controls are effective, and people may view any success controls have as an aberration rather than as a basis for changing long-run expectations.

POLITICAL INFLATION

In the 1950s, 1960s, and early 1970s, some Chileans explained their chronic hyperinflation as "a 'struggle' or even 'civil war' between the country's major economic interest groups." Albert O. Hirschman (1963:192–223) contends that in Latin America, inflation, as civil war, can be caused by "a group which wrongly believes that it can get away with 'grabbing' a larger share of the national product than it has so far received." When communication among economic groups is poor, one or more classes may overestimate its strength and make excessive money demands that can be worked out only through inflation. Such a process may reduce tension that may otherwise result in revolution or war. Many LDC ministers of labor have averted a political strike by granting inflationary wage increases. As Russians stated during the 1992–95 hyperinflation, "inflation is a substitute for civil war" and "nobody has died yet from inflation" (Popov 2001:43).

Social tensions and class antagonisms causing this **political inflation** are too deep seated to be cleared up by short-run government policies. In fact, the political threat of the conflict may be so great that the government may have little choice but to tolerate persistent inflation.

MONETARY INFLATION

Monetary policy in low-inflation environments rarely considers the supply of and demand for money (Leeper and Roush 2003; Svensson and Woodford 2003). Indeed, according to Rudiger Dornbusch (1993:1), Milton Friedman's view that "inflation is always and everywhere a monetary phenomenon," although sometimes true, usually is not true. Identifying when monetarism is relevant is an art. In the United States, Dornbusch continues, the monetarist "comes out of the corner" during inflation but "stays in hiding" when there is no inflation. In the United States, Dornbusch (1993:1) asserts: "Monetarism does not do a lot for us, no more at least than the prediction that it is colder in winter than in summer."

Similarly, in LDCs, monetarism has little explanatory value except during high inflation, as during the late 1980s or early 1990s in Latin America, the former Soviet Union, and parts of Eastern Europe and Africa. According to Robert McNown and Myles S. Wallace (1989:533–545), monetary growth outweighs real shocks in explaining price increases during high inflation, as occurred in Brazil, Chile, Argentina, and Israel in the 1970s and 1980s. High inflation not only occurs during civil war, revolution, deep social unrest, and weak government, but also with external shocks (such as the German reparation payments in the 1920s, the oil price hikes of 1973–75 and 1979–80, and the debt crisis and high real interest rates of the 1980s). Monetary expansion contributes to inflation, while rapid inflation wipes out the real value of tax revenues, increasing budget deficits and accelerating money

growth, thus strengthening the link between financing the budget and the growth of money (Dornbusch 1993:1–2; Sachs and Larrain B 1993:723–27).

INCOMES POLICIES AND EXTERNAL STABILIZATION

The price of foreign exchange plays an important role in spurring on inflation. In many instances, hyperinflation is triggered by a balance-of-payments crisis and the resulting currency collapse. The increased price of foreign inputs to domestic production provides a stimulus to cost–push inflationary pressures.

Stabilizing high inflation requires budgetary and monetary control, increasing tax yields, external support (to reduce supply-side limitations), structural (supply-side, many middle- to long-run) reforms (Chapter 19), and incomes policies to reduce inflationary inertia. Providing external loans so the country has ample reserves for imports is one way to provide assurance for the foreign-exchange and capital markets, and increase the likelihood the reserves do not have to be used. Incomes policies, such as freezing exchange rates, wages, and prices for a few months can effectively supplement domestic budget cuts. Relying on demand management (contractionary monetary and fiscal policies) alone without incomes policies will create an extraordinary depression. Dornbusch (1993:1–3, 13–29) suggests fixing the price of foreign exchange without overvaluation for two to three months (to reduce inflation inertia), then eventually using a **crawling peg**, which depreciates home currency continuously so the exchange rate facilitates external competitiveness.[8] Fischer (2001b:6) thinks that there are few instances of "successful disinflation from triple-digit inflation . . . without the use of an exchange rate anchor." Mexico used a crawling peg in 1993–94 but, in the face of rising U.S. interest rates in 1994, the band within which the peso price of the dollar could "crawl" (read increase) to maintain balance-of-payments equilibrium was too narrow, thus triggering a foreign-exchange crisis in late 1994 and early 1995 (Lusting 1995:C-5). In 1991, Argentina pegged the peso to the dollar and established a **currency board** to limit domestic currency issue to 100 percent of foreign currency and reserve assets, policies that generated an "inflation miracle" – slashing inflation from 3,080 percent annually in 1989 and 2,315 percent in 1990 to 172 percent in 1991, 25 percent in 1992, 11 percent in 1993, and 4 percent in 1994! However, critics contend that after peso stabilization, Argentina suffered from a loss of competitiveness from a peso overvalued relative to dollar, as suggested by a shift from a current-account (international balance on goods, services, income, and unilateral transfers) surplus of $4.5 billion in 1990 to a **current account** deficit that continued from 1992 to the peso collapse and Argentine default of 2001 (IMF 1992:19; Economist 1994a:76; IMF 1994:25; Mussa 2002).

[8] McKinnon (1993:106–07) recommends indexing the peg to the change in the domestic general price index relative to the change in the foreign general price index.

An IMF panel analyzing the uses of exchange rates to steady prices in high-inflation economies was skeptical about fixing the price of foreign exchange for any length of time. In some instances, the IMF panel granted, a country could successfully use the exchange rate as an anchor when this policy was accompanied by a credible program of fiscal restraint. "Using Exchange Rate Anchors in Adjustment Programs: When and How?" *IMF Survey* (November 20, 1995), pp. 361–363.

Here, using a crawling peg for the peso after a short initial period of a fixed peg might have prevented a deterioration in the trade balance. Chapter 17 indicates how an LDC could use inflation targeting with a floating exchange rate to anchor prices while attaining independence of monetary policy.

BENEFITS OF INFLATION

Inflation need not be all bad. In fact, would we not welcome inflation if it contributed to economic growth and higher material well-being? As a matter of fact, the Nobelist Robert A. Mundell's (1965:97–109) monetarist model indicates that rapid inflation may add 1 percentage point to annual, real economic growth by spurring extra capital formation.

Some economists argue that inflation can promote economic development in the following ways.

1. The treasury prints money or the banking system expands credit so that a modernizing government can raise funds in excess of tax revenues. Even if real resources remain constant, inflationary financing allows government to control a larger resource share by bidding resources away from low-priority uses.
2. The government can use inflationary credit to redistribute income from wage earners who save little to capitalists with high rates of productive capital formation. Businesspeople usually benefit from inflation, as product prices tend to rise faster than resource prices. For example, wages may not keep up with inflation, especially in its early stages when price increases are greater than anticipated. Furthermore, inflation reduces the real interest rate and real debt burden for expanding business.
3. Inflationary pressure pushes an economy toward full employment and more fully utilizes labor and other resources. Rising wages and prices reallocate resources from traditional sectors to rapidly growing sectors.

COSTS OF INFLATION

Yet inflation can be highly problematical.

1. Government redistribution from high consumers to high savers through inflationary financing may work during only the early inflationary stages. When people expect continued inflation, they find ways of protecting themselves against it. Wage demands, automatic cost-of-living adjustments, for example, reflect inflationary expectations. Retirees and pensioners pressure government to increase benefits to keep up with inflation. Government may respond to other political interests to control increases in the prices of food, rents, urban transport, and so forth. Official price ceilings inevitably distort resource allocation, frequently resulting in shortages, black markets, and corruption.
2. Inflation imposes a tax on the holders of money. Government or businesspeople benefiting from inflationary financing collect the real resources from the **inflation**

tax. People attempt to evade the tax by holding onto goods rather than money. Yet, to restore the real value of their money, people would have to accumulate additional balances at a rate equal to inflation.

3. Inflation distorts business behavior, especially investment behavior, since any rational calculation of profits is undermined. Entrepreneurs do not risk investing in basic industries with a long payoff period but rather in capital gains assets (for example, luxury housing) as a protection against inflation. Businesspeople waste much effort forecasting and speculating on the inflation rate, or in hedging against the uncertainties involved (Johnson 1965:22–28).
4. Inflation, especially if it is discontinuous and uneven, weakens the creation of credit and capital markets. Uncertainties about future price increases may damage the development of savings banks, community savings societies, bond markets, social security, pension funds, insurance funds, and government debt instruments. For example, Brazil's annual growth rate in GNP per capita declined from 11 percent in 1968 to 1973 to 5 percent in 1973 to 1979, partly from the adverse impact of inflation on savings. Nominal interest rates remained almost constant while annual inflation accelerated from 13 percent in 1973 to 44 percent in 1977. Because of the resulting negative *real* interest rates, savings were reduced and diverted from productive investment (Cline 1981:102–105; World Bank 1981i).
5. Monetary and fiscal instruments in LDCs are usually too weak to slow inflation without sacrificing real income, employment, and social welfare programs.
6. Income distribution is usually less uniform during inflationary times. Inflation redistributes income, at least in the early stages, from low-income workers and those on fixed income to high-income classes. This redistribution may not increase saving, as the rich may buy luxury items with their increased incomes. A study of seven LDCs (including Brazil, Uruguay, Argentina, and Chile) by the Organization for Economic Cooperation and Development concluded that "there is no evidence anywhere of inflation having increased the flow of saving" (Little, Scitovsky, and Scott 1970:77).
7. Inflation increases the prices of domestic goods relative to foreign goods – decreasing the competitiveness of domestic goods internationally and usually reducing the **international balance of merchandise trade** (exports minus imports of goods). Inflation also discourages the inflow of foreign capital, as the real value of investment and of future repatriated earnings erodes. The large international deficits that often come with rapid inflation can increase debt burdens and limit essential imports.

With inflation in excess of 30 percent a year in the mid-to-late 1970s, Brazil depreciated the cruzeiro relative to the U.S. dollar at a steady, predictable rate to keep domestic prices competitive. However, devaluation stimulated inflation through the increased demand for Brazilian goods and cost–push pressures from higher import prices. Furthermore, Brazilian inflation was too erratic for steady exchange-rate changes to prevent fluctuations in real export and import prices. Yet most LDCs

are not even so capable as Brazil in managing monetary, fiscal, and exchange-rate policies to limit the evils of inflation.

THE DYNAMICS OF INFLATION

Once high inflation occurs, the disintegration of financial institutions (such as bond markets, lending agencies in domestic currency, savings banks, and holding money as a store of value) exacerbates inflation further. If there is any delay between the accrual and payments of taxes, their real value erodes disastrously (2004 taxes paid in 2005 wreaks havoc with the real value of tax collection). As inflation accelerates, contracts or indexation lags shorten (to avoid real wages declining as inflation erodes the purchasing power of the constant nominal payments), which causes inflation to accelerate. Under extreme inflation, governments may abandon domestic currency for foreign currency, as U.S. dollars in Russia, 1992–94. Doing this means the government must continue to increase inflation to get any seigniorage. As economic institutions collapse and wage contracts and financial asset maturities shrink, hyperinflation becomes inevitable. The erosion of the real value of taxation, the shortening of contracts, and financial adaptation to inflation all react perversely to widen the deficit and accelerate the inflation rate explosively (Dornbusch 1993:18–24).

INFLATION AND GROWTH: EMPIRICAL EVIDENCE

As indicated earlier, Mundell's monetarist model suggests that inflation can increase real economic growth. However, the earlier empirical evidence is mixed, depending on the time period, country group, and range of inflation examined. Opposing Mundell's work, Henry C. Wallich's (1969:281–302) study of 43 countries from 1956 to 1965 finds a negative relationship between inflation and real economic growth. A. P. Thirlwall and C. A. Barton's (1971:263–275) review of 51 countries from 1958 to 1965 finds no significant correlation between inflation and growth. But U Tun Wai's (1959:302–17) study of 31 LDCs from 1946 to 1954, and Graeme S. Dorrance's (1966:82–102) research on 49 DCs and LDCs from 1953 to 1961, indicate a positive relationship between the two variables.

Thirlwall, Barton, Tun Wai, and Dorrance find that, among LDCs, growth declines when annual inflation exceeds 10 percent. The early evidence suggests that inflation in LDCs has *not* contributed to economic growth but may inhibit growth, especially at annual percentage rates in the double digits (Nugent and Glezakos 1982:321–334).[9]

The MIT economist Stanley Fischer (1993:485–512), subsequently the IMF's Deputy Managing Director, finds that, during the 1980s, low inflation and small deficits were not essential for high growth rates even over long periods but high inflation (40 percent or more yearly) is not consistent with sustained growth. Inflation,

[9] Could the causal relationship lead from growth to inflation rather than the other way around? Thirlwall and Barton (1971:269–70) argue that "if growth is a supply phenomenon, higher growth should lower inflation not exacerbate it. Real growth by itself cannot be the cause of inflation unless it sets in motion forces which themselves generate rising prices and persist" – such as shortages in the produce and factor markets. Attempts to expand demand in excess of the growth rate of productive potential can cause inflation, but it is a non sequitur to argue from this that real growth causes inflation.

by reducing capital accumulation and productivity growth, is negatively correlated with economic growth.

The IMF economists Mohsin Khan and Abdelhak Senhadji (2001:1–21) find a threshold level of 11–12 percent, above which inflation is negatively correlated with growth. But the economists were not able to determine the direction of causality.

Since the early 1990s, macroeconomic policies and performance in LDCs have improved markedly. Inflation has been more stable than previously (see Table 14-4 for evidence concerning reduced inflation since the early 1990s). The international economy has been less volatile and central bankers and monetary policy makers have improved tools and knowledge for stabilizing output and prices. Moreover, a reduction in direct state ownership of banks and the introduction of explicit deposit insurance have improved the effectiveness of monetary policy in stabilizing the macroeconomy (Cecchetti and Krause 2001).

This improved proficiency is reflected in studies examining LDCs' control of inflation. Michael Bruno and William Easterly's (1998:3–24) study for the World Bank shows *no* negative correlation between inflation and economic growth for inflation rates under 40 percent annually; the negative relationship between inflation and growth holds only for high-inflationary economies. Based on this, the World Bank Chief Economist Joseph Stiglitz (1998:8) argues, in his U.N. University/World Institute for Development Economics Research lecture, that below this level, "*there is little evidence that inflation is costly*" [his italics]. Indeed, Stiglitz (1988:4; 2002a:27, 45, 107) indicates that the preoccupation of the IMF, along with U.S. economic officials, with contractionary monetary and fiscal policies (increased interest rates and reduced taxes and government spending) exacerbated the downturn during the East Asian 1997–99 crisis, stifling growth and spreading the downturn to neighboring countries. Moreover, the IMF contributed to financial instability by urging reduced financial regulation when inadequate financial-sector supervision and monitoring was a more serious problem among developing countries (Stiglitz 2002a:81). Christopher Cramer and John Weeks (2002:43–61) contend that the focus of IMF macroeconomic stabilization programs, often draconian monetary measures, the conditions for lending of last resort to LDCs, is usually unnecessary and harmful. Reviving growth should generally take precedence over monetary and fiscal orthodoxy. In 1995, more than half the LDCs had inflation rates of less than 15 percent annually, indicating to Stiglitz (1988:14) that for these countries, "controlling inflation should not be an overarching priority."[10]

Financial Repression and Liberalization

The LDC money markets tend to be highly oligopolistic even when dominated by domestic banks and lenders. Government **financial repression** – distortions of the

[10] Even the IMF Chief Economist Kenneth Rogoff, 2001–03 (2004:65) admits that "in today's world of very low inflation, the Fund remains a bit too concerned about whether central banks are ambitious enough in their inflation targets.

interest rates, foreign exchange rates (Chapter 17), and other financial prices – reduce the relative size of the financial system and the real rate of growth.

Frequently, the motive for LDC financial restriction is to encourage financial institutions and instruments from which the government can expropriate **seigniorage** (or extract resources from the financial system in return for controlling currency issue and credit expansion). Under inflationary conditions, the state uses reserve requirements and obligatory holdings of government bonds to tap savings at low or negative *real* interest rates. Authorities suppress private bond and equity markets through transactions taxes, special taxes on income from capital, and inconducive laws to claim seigniorage from private holders' assets. The state imposes interest rate ceilings to stifle private sector competition in fund raising. Imposing these ceilings, foreign exchange controls, high reserve requirements, and restrictions on private capital markets increases the flow of domestic resources to the public sector without higher taxes or interest rates, or the flight of capital overseas (see Chapter 16).

Under financial repression, banks engage in nonprice rationing of loans, facing pressure for loans to those with political connections but otherwise allocate credit according to transaction costs, all of which leave no opportunity for charging a premium for risky (and sometimes innovative) projects. Overall, these policies also encourage capital-intensive projects (Chapter 9) and discourage capital investment. The LDC financially repressive regimes, uncompetitive markets, and banking bureaucracies not disciplined by market and profit tests may encourage adopting inefficient lending criteria. The high arrears, delinquency, and default of many LDC (especially official) banks and development lending institutions result from (1) failure to tie lending to productive investment; (2) neglect of marketing; (3) delayed loan disbursement and unrealistic repayment schedules; (4) misapplication of loans; (5) ineffective supervision; (6) apathy of bank management in recovering loans; and (7) irresponsible and undisciplined borrowers, including many who (for cultural reasons or misunderstanding government's role) fail to distinguish loans from grants. Additionally, Argentina's, Brazil's, Chile's, Uruguay's, Mexico's, Turkey's, Thailand's, and pre–World War II Japan's bank-lending policies have suffered from collusion between major corporations and banks.

Combating financial repression, which is as much political as it is economic, can reduce inflation. Financial liberalization necessitates abolishing ceilings on interest rates (or at least raising them to competitive levels), introducing market incentives for bank managers, encouraging private stock and bond markets, and lowering reserve requirements. At higher (market-clearing) interest rates, banks make more credit available to productive enterprises, increasing the economy's capacity and relieving inflationary pressures. Trade liberalization, which (often) threatens politically influential import-competing industrialists, increases product competition and reduces import prices (see Chapter 19), reducing input prices and cost–push inflation (McKinnon 1973; Shaw 1973; Blejer 1983:441; Gill 1983: Morris 1985:21; Fry 1988:7–18, 261–335; Je Cho 1988:101–10; McKinnon 1993:43–83). (Box 14-1 gives examples of how liberalization in India affects individual firms.)

BOX 14-1. EXAMPLES OF THE EFFECT OF LIBERALIZATION IN INDIA ON INDIVIDUAL FIRMS

Because of long-standing restrictions, Indian companies did not participate in the borderless Asian-Pacific economy (discussed in Chapters 3 and 17) and were at a major disadvantage in winning contracts overseas. In 1990, one year before India's liberalization program, TRP Software, Limited, a Calcutta data systems and software company, undertook a detailed study to bid to design information management services for the municipal government of a major Australian city. Foreign-exchange restrictions prevented TRP's director, J. T. Banerjee, from taking more than one trip to the city to do the planning. Nevertheless, TRP took advantage of India's low-salaried professional designers, software engineers, and systems analysts to put together a highly competitive package for the Australian city. Other firms from countries without foreign-exchange restrictions sent executive officers to Australia with the design and bid. Because of the prohibitive amount of time necessary to receive Reserve Bank of India foreign-exchange permission for the trip, TRP had to rely on an express package service, which delivered the firm's bid ten minutes late, thus losing the opportunity to win the contract.

In 1991, in response to an international balance of payments crisis, India undertook liberalization. TRP no longer faced limitations in competing overseas. A number of other firms found that foreign-currency decontrol had facilitated acquiring imports to improve plant and machinery (albeit at higher rupee prices) and spurred them to seek market overseas. The liberalized foreign-exchange regime (higher rupee price of the dollar and delicensing of many foreign purchases) was a welcome change for a southern marble products entrepreneur, who reduced his time for clearing imported machines through Indian customs from an average of one month before 1991 to two days since 1993.

In the 1960s and 1970s, the Indian government tried to influence industrial investment and production by physical controls operated partially through a licensing system. The purposes of these controls were to guide and regulate production according to targets of the Five Year plans, to protect balanced economic development among the different regions of the country. Jagdish Bhagwati explains that the 1991 economic reform was not a return to laissez-faire policies, but an effort to prevent the government from counter-productive intervention (Bhagwati 1993:98).

India's licensing policy enticed entrepreneurs to focus on making profits from long-term government-granted **monopoly rents**, such as those from influence and connections to acquire licenses rather than from innovation, which provides only a temporary monopoly gain. Most firms that failed to acquire licenses or quotas were unable to survive. By contrast, several manufacturing firms with input licenses continued to operate, although variable cost exceeded revenue in manufacturing. They could still make a profit by acquiring inputs on the controlled market and selling them on the free market for higher prices. A number of firms were producing enough to give the appearance of being genuine manufacturing firms, while making their profits on buying and selling controlled inputs.[11]

(*continued*)

[11] Nafziger (1978:108–119); Nafziger and Sudarsana Rao (1996). My colleagues and I conducted interviews of Indian entrepreneurs and managers in 1971 and 1993. J. T. Banerjee is a pseudonym I use for an entrepreneur I interviewed; likewise, TRP Software is not the real name of Mr. Banerjee's firm.

A manager of one of the largest industrial conglomerates complained about a major plank of India's financial liberalization, the increase in interest rates charged by banks, which had been previously state-owned. This industrial aggregate, which had adapted to the sluggishness of license-protected monopoly production, would no longer be profitable at these higher interest rates.

For entrepreneurs in India, liberalization measures have been a two-edged sword, resulting in the entry or expansion of firms previously blocked, and eliminating many inefficient firms formerly protected through monopoly rents from a licensing regime. Some entrepreneurs have gained and some have lost from liberalization. The major advantage of liberalization, however, is to reduce the number of entrepreneurs who survive from monopoly rents and to increase the number of entrepreneurs who survive as a result of innovation, efficiency, and production managerial ability.

But liberalization also requires greater restrictions by the monetary and fiscal authorities. The central bank and finance ministry must regulate the growth of banks and other enterprises that grant credit, create checkable deposits, and provide cash on demand. An independent board should replace government industrial departments in managing foreign exchange, in order to restrict the excessive bidding for foreign currency by enterprises desperate to find a nondepreciating liquid financial asset to hold during high inflation. The central government must limit spending, maintaining a balanced budget, especially in the transition to a liberal market economy. As the private sector increases in size relative to the state sector, the fiscal authorities need to maintain their collection of turnover and excess profits taxes on state enterprises until the transition to a new tax system that raises revenue from both private and government firms. In the early 1990s, Russia's failure to restrict the creation of "wildcat" banks and unregulated quasi-bank intermediaries, to restrain the holding of foreign-exchange liquid assets, to collect revenues, and to limit state spending contributed to inflation rates in excess of 700 percent annually from early 1992 to late 1993 (IMF 1993:86–90; McKinnon 1993:1–10, 120–61, 213; IMF 1995:52–58). (See Chapter 19 for more discussion of optimal sequences in the transition from state socialism to a market economy.)

Still, mild financial repression – specifically repression of interest rates and contest-based credit allocation – contributed to rapid growth in Japan (both before and after World War II), South Korea, and Taiwan. But each of these economies had competent and politically-insulated bankers and government loan bureaucrats to select and monitor projects, and apply export performance as a major yardstick for allocating credit (World Bank 1993a:237–241, 356–358; Kwon 1994:641; Yanagihara 1994:665–666). Few other LDCs have the institutional competence to ration credit based on performance; usually, the public accuses financial officers who allocate funds at below-market rates of nepotism, communalism, and other forms of favoritism.

Moreover, reducing financial and price repression can, in the short run, spur inflation. Financial liberalization, through abolishing ceilings on interest rates, encouraging private stock and bond markets, creating other new financial intermediaries,

lowering reserve requirements, and decontrolling exchange rates, means government loses part of its captive inflation tax base (Dornbusch 1993:21–22).

A Capital Market and Financial System

Macroeconomic stability is enhanced by a robust capital market and financial system, which select "the most productive recipient for [capital] resources [and] monitor the use of funds, ensuring that they [continue] to be used productively" (Stiglitz 1998:14). Initially, banks play the dominant role in LDC capital markets, with bond and equity markets secondary.

The major role of banks is as an intermediary between savers and investors and to facilitate payments between individuals and firms. Banks can provide funds to entrepreneurs better than the individual saver for several reasons: investment projects may be large enough to require pooling of funds, savers may want funds back relatively soon or may want to spread funds among several projects, and banks are better than individuals in identifying promising projects. Banks also provide discipline to the market, providing loans to higher quality borrowers at lower costs and charging a premium to lower quality borrowers. They can monitor borrowers, forcing them to restructure their businesses or even discontinuing loans (Lardy 1998:59–60).

In time, government needs to develop a bond market to facilitate raising resources for social spending and economic development. Also important is a central bank, with a director and staff chosen for their technical qualifications, who use economic criteria for making decisions about monetary expansion (Uche 1997). However, Ajit Singh (1999:341, 352) argues that, although improving the banking system is important for increasing low-income countries' savings and investment, a stock market is "a costly irrelevance which they can ill afford;" for most others, "it is likely to do more harm than good," as its volatility may contribute to "financial fragility for the whole economy," increasing "the riskiness of investments and [discouraging] risk-averse corporations from financing their growth by equity issues."

The Bank for International Settlements'[12] Basle Committee, *The Core Principles for Effective Banking Supervision* (1997), lists principles of supervision: licensing process, criteria for acquisitions and ownership transfers, prudential regulations and requirements, methods of ongoing banking supervision, information requirements, and standards for cross-border banking. Preconditions for supervision include sound and sustainable macroeconomic policies, effective market discipline, procedures for efficient resolution of problems in banks, and public infrastructure (corporate, bankruptcy, contract, consumer protection, and private property laws consistently enforced, internationally acceptable accounting principles, and independent audits of banks and companies) essential for supervision. Few LDCs have the resources to attain Basle standards.

[12] The Bank for International Settlements (BIS) fosters international cooperation among central banks and other agencies to pursue monetary and financial stability. The BIS has 55 member banks, but is dominated by the **Group of Ten (G-10)**, listed in Chapter 15.

Financial Instability

The Mexican financial crisis of 1994, Asian crisis of 1997–99, Russian crisis of 1998, and Argentine crisis of 2001–03 contributed to swings in GNI growth of 5 to 10 percentage points, of the same magnitude as in the United States during the 1929–33 and 1937–38 Great Depression. Here I examine the domestic monetary aspects of these crises while discussing the international financial and exchange-rate components in Chapter 16.

According to Frederic Mishkin (1999:3–4), financial markets perform the function of channeling funds to those with productive investment opportunities. When the financial system performs this role poorly, the economy operates inefficiently with negative economic growth, as in Thailand, Indonesia, Malaysia, and South Korea in 1998.

What problems contribute to financial instability? The financial system lacks the capability of making judgments about investment opportunities from asymmetric information, such that lenders have poor information about potential returns of and risks associated with investment projects. Lending is subject to **adverse selection**, in which potential bad credit risks are most eager to take out loans, even at higher rates of interest, and **moral hazard**, in which the lender or members of the international community bears most of the loss if the project fails (Mishkin 1999:4).

Adverse selection is similar to the Nobel winner George Akerlof's (1970:488–500) "lemons" problem, in which used-car buyers, lacking information on quality, steer way from buying a car at the lowest price, fearing a low-quality automobile. Analogously, informed lenders may avoid lending at high interest rates, because they lack information on the quality of borrowers who might be less likely to repay the loan.

For Mishkin, the shocks to the financial system from the Asian crisis were a deterioration in financial sector balance sheets (from nonperforming loans as a percentage of lending in excess of 7 percent), increases in interest rates (leading to greater "adverse selection"), increases in uncertainty (about bank failure, future government policy, or a possible recession), and the deterioration of nonfinancial balance sheets (from a fall in asset prices, and thus a fall in the value of borrower collateral) (Mishkin 1999:6–9).

An additional contributor to financial instability, discussed in Chapter 16, is an exchange-rate depreciation when debt contracts are denominated in foreign currency. The Asian financial and currency crisis followed financial liberalization, lifting interest rate ceilings and the type of lending. Expanded lending, fed by international capital inflows, was mainly to new borrowers, increasing risk. Banks had a shortage of well-trained loan officers and information on assessing risk, amid government failure in supervising banks. Pegging exchange rates, as in Asia, increases hidden costs, encouraging risk taking and foreign capital inflows (Chapter 16) (Mishkin 1999:10–16).

Mishkin and fundamentalists with the IMF point to financial sector weaknesses, high debt ratios, current-account deficits, overvalued currencies, moral hazard, and adverse selection by the offending LDC as responsible for the financial crises. For

fundamentalists, the orthodox IMF prescription, monetary and fiscal contraction, is essential for restoring internal and external balance.

Joseph Stiglitz (2000:1075) argues that the IMF and the international economic architecture must be designed not just for perfect economic management but for "the kind of fallible governments and public officials" that actually occur in LDCs. He doubts that most LDCs have the effective regulatory framework for financial and capital market liberalization. He compares "capital account liberalization to putting a race car engine into an old car and setting off without checking the tires or training the driver" (Stiglitz 2000:1075). The large number of crises suggests to Stiglitz the necessity for reexamining the design of the international architecture for the lender of last resort, the IMF (ibid.).

Islamic Banking

Although Islam, like early medieval Christianity, interprets its scriptures to ban interest, it encourages profit as a return to entrepreneurship together with financial capital. Moreover, like Western banks, Islamic banks are financial intermediaries between savers and investors and administer the economy's payment system. Bank depositors are treated as if they were shareholders of the bank. Islamic banks receive returns through markup pricing (for example, buying a house, then reselling it at a higher price to the borrower and requiring the borrower to repay over 25 years) or profit-sharing, interest-free deposits (mutual-fund-type packages for sale to investor-depositors). These banks operate alongside traditional banks in more than 50 countries (including Malaysia), but, in Ayatollah Ruhollah Khomeini's Iran (1979–89) and Mohammad Zia ul-Haq's Pakistan (1985–88), the government eliminated interest-based transactions from the banking system. Interest-free banking can improve efficiency, since profit shares are free from interest rate controls. Indeed, World Bank and IMF economist Mohsin S. Khan argues that Islamic banking, with its equity participation, is more stable than Western banking, as shocks are absorbed by changes in the values of deposits held by the public (Fry 1988:266; Iqbal and Mirakhor 1987; Khan 1986:1–27).[13]

However, Timur Kuran, Faisal Professor of Economics and Islamic Thought at the University of Southern California, questions whether the Muslim scripture, the Qur'an, bans interest and earning money without assuming risk. According to Kuran, Islamic banks pay profit shares to account holders from income received mostly from bonds and other interest-bearing assets. Moreover, in countries such as Turkey, "where Islamic banks compete with conventional banks, the ostensibly interest-free

[13] Jehle (1994:205–215) finds that *zakat*, one of the five Muslim pillars of the faith that mandates that believers give alms to the poor, reduces income inequality in Pakistan, both within and between provinces. However, the great bulk of giving and receiving is done by the poor and near-poor among themselves. Kuran (1995:163–164) finds that the equalizing effect of *zakat* has been disappointing, because of low rates, vast loopholes, widespread evasion, the high costs of administering a system that loses substantial sums to official corruption, and the diversion of revenue to finance causes other than poverty reduction, including religious education and pilgrimages to Mecca.

returns of [Islamic banks] essentially match the explicitly interest-based returns of [conventional banks]" (Kuran 1995:161).

Profit sharing is problematic when businesses use double bookkeeping for tax evasion, making their profits difficult for banks to determine (Khan 1986:1–27). Because many borrowers hide information about their actual profits, many Islamic banks shun profit and loss sharing even in the presence of huge tax incentives. Indeed, Kuran finds that Islamic banks and enterprises do business much like their secular counterparts. Kuran (1995:155–173) asks why economic Islamization has generated so much excitement and participation without bringing about major substantive changes? The main reasons, he contends, are the desire of politicians to demonstrate a commitment to Islamic ideals, the efforts of Muslim business people who feel they behave in un-Islamic ways to assuage their guilt, and the attempts to foster networks of interpersonal trust among those with a shared commitment to Islam.

Conclusion

1. Central banks in LDCs generally have less effect on expenditure and output than in DCs because of an externally dependent banking system, a poorly developed securities market, the limited scope of bank loans, the low percentage of demand deposits divided by the total money supply, and the relative insensitivity of investment and employment to monetary policies.
2. Tax revenue as a percentage of GNP in LDCs is about 18 percent compared to 38 percent in DCs.
3. The increase in tax ratios with GNP per capita reflects both the growth in the demand for public services and the capacity to levy and pay taxes.
4. Direct taxes (such as taxes on property, wealth, inheritance, and income) account for about one-third of revenue sources in LDCs and about one-half to two-thirds in DCs. Major indirect taxes in most LDCs are those on international trade, production, and internal transactions, which, however, distort resource allocation. Direct taxes generally have a higher elasticity (that is, percentage change in taxation/percentage change in GNP) than indirect taxes.
5. Some DCs use the progressive income tax to mobilize large amounts of public resources, improve income distribution, stabilize income and prices, and prevent inefficient use of resources, often arising from a heavy reliance on indirect taxes. However, import, export, and excise taxes are the major sources of tax revenue in LDCs. Most LDCs lack the administrative capacity to emphasize an income tax.
6. A number of LDCs have introduced the value-added tax, a tax on the difference between the sales of a firm and its purchases from other firms. The appeals of the value-added tax are simplicity, uniformity, and the generation of substantial revenues.
7. Developing countries cannot use fiscal policy to stabilize income and prices as effectively as developed countries can. The LDC governments have less control over the amount of taxes raised and less scope for speeding up or delaying expenditures.

8. A relatively small percentage of government spending in LDCs is on health, social security, and welfare, and a relatively high percentage on infrastructure.
9. The annual inflation rate in LDCs increased from less than 10 percent in the 1960s to over 20 percent in the 1970s and over 70 percent in the 1980s, but fell to 16 percent in the 1990s. The highest inflation rates, in Latin America, dropped to about 30 percent yearly in the 1990s.
10. Demand–pull is not an adequate explanation for inflation in LDCs. Inflation may be cost–push (from the market power of businesses and unions), ratchet (from rigid prices downward), or structural (slow export growth and inelastic food supply), with added momentum, once started, from inflationary expectations. Policies to moderate inflation include market-clearing exchange rates, wage–price controls, antimonopoly measures, land reform, structural change from agriculture to industry, and improved income distribution. With the possible exception of exchange-rate policy, most LDCs lack the administrative and political strength to undertake these policies, especially in the immediate future.
11. Countries with high rates of inflation may use incomes policy – wage and price guidelines or controls, and exchange-rate fixing – together with monetary and fiscal stabilization to reduce increases in the price index.
12. Some economists argue that inflation can promote economic growth by redistributing income from low savers to high savers. However, inflation distorts resource allocation, weakens capital markets, imposes a tax on money holders, undermines rational business behavior, increases income inequality, hurts the balance of trade, and, beyond the early stages of inflation, probably does not redistribute income to high savers.
13. Yet, recent evidence indicates that inflation less than 30–40 percent yearly does not hamper growth, indicating that LDCs probably should not be preoccupied with controlling mild inflation.
14. The LDC money markets are often highly oligopolistic and financially repressive, distorting interest rates, foreign exchange rates, and other financial prices. Government protects oligopolistic banks to be able to tap savings at low interest rates. If political elites have the will to undertake financial liberalization, they can reduce inflation and spur growth.
15. When financial markets channel funds to those with productive investment opportunities poorly, the economy operates inefficiently, as in Asia during the 1997–98 financial crisis.

TERMS TO REVIEW

- adverse selection
- capital market
- cascade tax
- consumer price index (CPI)
- cost–push inflation
- crawling peg
- currency board
- current account
- demand–pull inflation
- direct taxes
- elastic tax
- financial liberalization

- financial repression
- fiscal incentives
- fiscal policy
- GDP deflator
- Group of 10
- hyperinflation
- import substitutes
- incomes policy
- indirect taxes
- inflation
- inflationary expectations
- inflation tax
- international balance of merchandise trade
- monetary policy
- monopoly rents
- moral hazard
- political inflation
- progressive tax
- ratchet inflation
- regressive tax
- seigniorage
- social goods
- stagflation
- value-added tax (VAT)
- Wagner's law

QUESTIONS TO DISCUSS

1. What prevents LDC use of monetary, fiscal, and incomes policies from attaining goals of output and employment growth and price stability?
2. Why are taxes as a percentage of GNP generally lower for LDCs than for DCs?
3. What are the goals of LDC tax policy? What obstacles do LDCs encounter in reaching their tax policy goals?
4. Why are direct taxes as a percentage of GDP generally lower, and indirect taxes as a percentage of GDP generally higher, for LDCs than DCs? Why is heavy reliance on indirect taxes as sources of revenue often disadvantageous to LDCs?
5. Indicate the benefits and difficulties associated with using value-added taxes in developing countries.
6. What tax measures can LDCs take to reduce income inequality? To increase capital and enterprise?
7. What, if any, is the tradeoff between tax policies that reduce income and wealth concentration and those that increase capital formation?
8. Why is health, social security, and welfare spending as a percentage of GDP less in LDCs than DCs? Why is health, social security, and welfare spending as a percentage of total government spending less in LDCs than DCs?
9. Why are military expenditures as a percentage of GDP high in low-income countries?
10. Why did the LDC inflation rate increase from the 1960s to the 1980s? Why did the LDC inflation rate fall from the 1980s to the 1990s?
11. What causes LDC inflation? Which causes are most important? How might LDCs reduce inflation?
12. Why was inflation so rapid in Latin America in the 1960s, 1970s, and 1980s?
13. In what way might inflation avert civil war or political violence?

14. How important are monetary factors in contributing to LDC inflation?
15. What are the costs and benefits of inflation?
16. What is the role of the foreign-exchange rate in stabilizing inflation?
17. What is the empirical relationship between inflation and growth?
18. Compare the monetary, fiscal, and incomes policies to use in high-inflation countries to policies to use in countries with low inflation.
19. Explain the political and economic reasons for frequent LDC government financial repression and the effects it has on economic development. Indicate policies for LDC financial liberalization and ways in which they could affect inflation and real growth.
20. What effect might financial liberalization have on individual firms in LDCs?
21. What explains financial markets performing poorly in channeling funds to productive investment opportunities?

GUIDE TO READINGS

Tanzi and Zee (2000) discuss tax policy for LDCs. Tanzi (1990) analyzes fiscal policy in LDCs. Alesina and Rodrik (1994:465–490) have an article on tax policy, income distribution, and capital formation. Mishkin (1999:3–20) discusses the monetary factors contributing to global financial instability. Tun Wai (1956:249–278) discusses the limitations of monetary policy in LDCs. Teera and Hudson's (2004:785–802) regression measures a country's tax effort.

Bruno and Easterly (1998:3–24), Stiglitz (1998:4; 2002a:27, 45, 107), and Khan and Senhadji (2001:1–21) analyze the relationship between inflation and growth in LDCs.

Dornbusch (1993) analyzes how to stabilize an LDC experiencing high inflation. Marcet and Nicolini's (2003:1476–1498) model shows how countries that experienced hyperinflation learn to lower seignorage and impose tight fiscal controls, thus avoiding recurrent hyperinflation. See Sachs and Larrain B (1993) on definitions of inflation and stopping high inflation.

De Oliveira Campos (1964:129–137) analyzes the controversy between monetarists and structuralists concerning Latin American inflation.

Stiglitz (2000: 1075–1086) examines how capital market liberalization affects economic growth. Stein, Ajakaiye, and Lewis (2001) have an insightful study into banking deregulation and corruption in Nigeria.

Agenor and Montiel (1996) discuss market structure, behavioral functions, exchange rate management, stabilization, structural reforms, and economic growth in an open-economy developing country.

McKinnon (1993) analyzes optimal strategies for financial liberalization in LDCs and transitional economies. Fry (1988), McKinnon (1973), Shaw (1973), and Blejer (1983:437–448) examine financial repression and liberalization and their impacts on development.

Ahluwalia (2002:67–88) shows how India's economic reforms affected economic performance.

Recent information on inflation is available from the International Monetary Fund's annual *World Economic Outlook* and the World Bank's annual *World Development Indicators*. Kindleberger, *Manias, Panics and Crashes* (1996), analyzes how speculative excess, often associated with the peaks of business cycles, spur financial crises.

Johnson (1965:22–28) has a systematic discussion of arguments for and against inflation.

Kuran (1995:155–173) has an excellent review article and bibliography on Islamic banking and economics.

The U.N. Development Program (1994:47–60, 170–171) discusses military spending and the peace dividend.

15 Balance of Payments, Aid, and Foreign Investment

Scope of the Chapter

This chapter discusses international aid and investment. We look first at globalization and its meaning. Second, we examine LDC economic interdependence. The third section discusses capital inflows, and the fourth, their roles in reducing savings and foreign exchange gaps. The fifth section reviews the balance of payments. Finally, the last section analyzes how to finance the deficit.

Globalization and Its Contented and Discontented

Globalization[1] is the expansion of economic activities across nation-states, including deepening economic integration, increasing economic openness, and growing economic interdependence among countries in the international economy (Nayyar 1997). For Harvard's Dani Rodrik (1998:1–3), globalization involves the increasing international integration of markets for goods, services, and capital, pressuring societies to alter their traditional practices to be competitive in the world economy.

As University of Delhi Vice-Chancellor[2] Deepak Nayyar (1997) points out, globalization took place during an earlier period, 1870–1913, as well as a later period, since 1950, especially since the 1970s and early 1980s. Similarities between the two periods include increases in export/GDP, capital flows, and technological change; trade then financial liberalization, the dominance of economic liberalism, the power of a hegemon or dominant economic power (early in Britain and later in the United States, other OECD economies, the World Bank, and the IMF), the dominance of the British pound (£) early and the U.S. dollar later, and scale economies (with new forms of industrial organization). Differences between the two periods included higher tariffs early, more non-tariff barriers late, strong externalization of services later, few foreign exchange flows early, greater capital flows/GNP early, more rapid expansion of international banking later, the dominance of intersectoral trade early, high labor flows (immigration/GNP) early, the disproportionate share of intra-industry trade (especially manufactures) later, and the increasing share of international trade that is intrafirm trade, that is, between affiliates of the same multinational corporation.

[1] The title of this section is a modification of Stiglitz's title (2002b).
[2] A vice-chancellor in India is equivalent to a university president in the United States.

Although liberal trade and capital flows benefit the world generally in the long run, globalization does reduce the autonomy of the nation-state economically and politically. Still, the state plays an important role in creating conditions for the development of specialized services, investment in education, industrial policy, establishment of institutions, facilitation and governance of markets, macromanagement of the economy, and minimization of social costs essential for globalization to contribute to the development of industrial capitalism (Nayyar 1997:17–18).

Dani Rodrik (1998:16–34) points out that an economy more open to foreign trade and investment faces a more elastic demand for workers, especially the unskilled, meaning that employers and consumers can more readily replace domestic workers with foreign workers by investing abroad or buying imports. Globalization increases job insecurity and shifts the cost of achieving improved working conditions from capital to labor. Rodrik thus supports DC protection against foreign sweatshops or low environmental standards. According to him, DCs have the right to restrict trade when it conflicts with widely held domestic norms. He asks: Aren't DCs justified in opposing foreign workers working 12-hour days, earning below minimum wage, and lacking union protection in the same way that they would oppose domestic workers exploited in that way?

Columbia's Jagdish Bhagwati agrees that the road to globalization has its rough sides, such as free flows of capital. Bhagwati criticizes the U.S. administrations' inability to distinguish between free trade, with its "tremendous upside," with the danger of free capital movements for LDCs with poorly developed financial institutions that need to borrow in dollars or euros. Bhagwati contends that governments need only modest assistance for those in import-competing industries facing adjustment from trade. However, the IMF and U.S. Treasury's insistence on free capital movements for middle-income Asian countries contributed to the Asian financial crisis, 1997–98, that "put in the hands of the foes of globalization the dagger they were seeking" (Bhagwati and Tarullo 2003; Radin 2000, quoting Bhagwati).

Bhagwati also led the Academic Consortium on International Trade (ACIT), a group of 242 economists trying to engage activists protesting the 2001 World Trade Organization meeting in Seattle. In an interview, Bhagwati argues that the MNC wage premium above local prevailing wages makes it difficult to argue that LDC apparel workers are "exploited." Moreover, the ACIT contends that if activists drive up MNC wages, "the net result would be shifts in employment that will worsen the collective welfare of the very workers in poor countries who are supposed to be helped" (Featherstone and Henwood 2001).[3]

The gains of globalization were uneven across country, region, and class, and contributed to greater marginalization for some peripheral economies (such as sub-Saharan Africa). Although many believe that external openness is negatively correlated with income growth among the poorest 40 percent of the population of LDCs, Chapter 17 indicates that the results of empirical studies are mixed. Moreover, even

[3] Bhagwati was so impressed with the fervor of activist students at Seattle that he put their picture on the cover of his next book (Featherstone and Henwood 2001; Bhagwati 2004).

some relatively prosperous groups are being hurt by globalization. Remember the discussion in Chapter 1 that indicated that DC middle classes are facing a deceleration in income growth, more competition from foreign (especially Asian) skills, and lowered expectations for a better life. Some of these middle classes may be part of the political mobilization against globalization.

Antiglobalization protests (perhaps misnamed, as many protesters may have been objecting to global industrial concentration and MNC domination and their effects on income distribution) increased during the 1990s and early years of the 21st century. People demonstrated, sometimes violently or were quelled violently by authorities, in opposition to the liberal economic agenda of leaders of DCs and international agencies. Protesters' demonstrations frequently irritated or disrupted international meetings of the IMF, World Bank, World Trade Organization, Group of Seven (G-7), the Food and Agriculture Organization of the U.N., OECD, and the World Economic Forum for economic elites at the Davos, Switzerland, ski resort – at least when these meetings were held in accessible venues. Antiestablishment protesters held an anti-Davos World Social Forum in Port Alegre, Brazil and Mumbai (Bombay), India. The *Wall Street Journal – Europe* (November 2, 2001, p. 3) supported the 2001 WTO meeting being held in Doha, "in the remote Persian Gulf state of Qatar," glad that the "anti-globalization protesters who hijacked its last meeting two years [before] in Seattle won't be there" (*World Bank Development News*, November 2, 2001).

North–South Interdependence

The countries of the North (DCs) and the South (third world) are economically interdependent. Even the United States, which, together with Japan, has the lowest *ratio of international trade to GDP* among DCs, depended more on the third world in the early 1990s than in the early 1970s. The U.S. merchandise imports as a percentage of GDP, which increased from 6 percent in 1970 to 12 percent in 1980, fell to 9 percent in 1987 before rising again to 10 percent in 1994 and 13 percent in 2001 (but, given the large U.S. trade deficit, exports were only 8 percent). However, U.S. exports to third-world countries (excluding Eastern Europe and the former Soviet Union) as a percentage of the total increased from 31 percent in 1970 to 38 percent in 1975 to 41 percent in 1981 before dropping to 34 percent in 1986 and 34 percent in 1990, but rising to 40 percent in 1994 and 43 percent in 2001. The U.S. imports from the third world increased from 25 percent in 1970 to 42 percent in 1975 (soon after the 1973–74 great oil price hike) to 46 percent in 1981 before declining to 34 percent in 1986, as oil prices fell and the United States became more competitive with dollar depreciation, but increased to 39 percent in 1990 and 42 percent in 1993 and 46 percent in 2001. The *share* of U.S. trade with the third world was more than that of Japan, Canada, the European Union-15, Australia, or New Zealand (U.S. Council of Economic Advisers 2003:269–404; World Bank 2004f:288).

In 2002, 54 percent of U.S. petroleum consumption was imported, of which 95 percent was from the third world. In about the same year, imports from the third world as a percentage of total consumption were high for a number of vital

minerals – 100 percent for coltan (essential for cellphones) and strontium, 83 percent of columbium, 88 percent for natural graphite, 86 percent for bauxite and alumina, 80 percent for manganese ore, 74 percent for tin, 62 percent for flourspar, 58 percent for barite, 57 percent for diamonds, and 51 percent for cobalt (U.S. Department of Commerce 1994; Energy Information Administration 2004; Kelly, Buckingham, DiFrancesco, Porter, Goonan, Sznopek, Berry, and Crane 2004).

In 1980, an independent commission, consisting of 20 diplomats from five continents chaired by former German Chancellor Willy Brandt, stressed that interdependence created a mutual interest by both North and South in reforming the world economic order. However, in the 1980s, LDC government remained dissatisfied with the lack of progress made by North–South conferences in reshaping old international economic institutions (or setting up new ones) to implement the Brandt Commission recommendations or the U.N. General Assembly's call for a new international economic order in the mid-1970s (see Nafziger 2006b). Among northern governments, the United States, still the world's major trader, banker, investor, and aid-giver, despite a relative decline in international economic power after the mid-20th century, was the most vocal in arguing that major changes in international economic institutions were not in the U.S. interest and perhaps of limited benefit even to LDCs. Keep this background in mind as we discuss external financing and technology in LDCs.

In the past, economists remarked that when the United States sneezed, Europe and Asia caught pneumonia (see Krugman 1999:97 on a similar observation). But the United States may no longer be the sole economic superpower. Jonathan Heathcote and Fabrizio Perri (2003:63) find "that over the last 40 years the U.S. business cycles have become less synchronized with the cycle in the rest of the world."

The increase in China's GNI, a figure likely to surpass that of the United States by the end of the first quarter of the 20th century, and the emergence of the European Union as the world's single largest market mean a decline in U.S. dominance. China's consumption boom played a major role in Japan's recovery in 2003 (Economist 2004b; Moffett and Dvorak 2004:A1) and may forestall East Asia's exhausting its long-sustained growth based on the advantages of technological backwardness, learning by doing, and increasing returns to scale.

Capital Inflows

National-income equations show the relationship between saving, investment, and exports minus imports of goods and services (that is, the international balance on goods, services, and income) or capital inflows.

The following equation shows income (Y) equal to expenditures (or aggregate supply equal to aggregate demand). National income, when calculated on the expenditure side, is

$$Y = C + I + (X - M) \tag{15-1}$$

where C = consumption, I = domestic capital formation (or investment), X = exports of goods and services, and M = imports of goods and services.

Savings (S) is that part of national income that is not spent for consumption, viz.

$$S = Y - C \tag{15-2}$$

Hence

$$Y = C + S \tag{15-3}$$

Thus, national income is equal to

$$C + I + (X - M) = C + S \tag{15-4}$$

If we subtract C from both sides of the equation,

$$I + (X - M) = S \tag{15-5}$$

Subtracting X from and adding M to both sides results in

$$I = S + (M - X) \tag{15-6}$$

If M exceeds X, the country has a deficit in its balance on goods, services, and income. It may finance the deficit by borrowing, attracting investment, or receiving grants from abroad (surplus items). Essentially

$$M - X = F \tag{15-7}$$

where F is a **capital import**, or inflow of capital from abroad. Substituting this variable in Equation 15-6 gives us

$$I = S + F \tag{15-8}$$

Equation 15-8 states that a country can increase its new capital formation (or **investment**) through its own domestic savings and by inflows of capital from abroad. (When a politically or economically unstable LDC exports capital through capital flight, there is an outflow of domestic savings; a net outflow means F is negative in Equation 15-8.)

LDCs obtain a capital inflow from abroad when institutions and individuals in other countries give grants or make loans or (equity) investments to pay for a balance on goods and services deficit (or import surplus). Thus, in 2001, Mexico received grants, remittances, and transfers of $9 billion and a net inflow of capital of $11 billion, and increased official liabilities by $7 billion to pay for a merchandise deficit of $10 billion and a service deficit of $17 billion. See Table 15-1 for the **international balance of payments statement**, an annual summary of a country's international economic and financial transactions. A double-entry bookkeeping system ensures that **current** (income) and capital **accounts** equal zero.

This inflow of foreign funds enables a country to spend more than it produces, import more than it exports, and invest more than it saves (Equations 15-1–15-8), and thus fills the gaps that limit development. A study by MIT economists (McCarthy, Taylor, and Talati 1987:5–39) indicates that without capital goods imports (electrical, mechanical, and transport equipment, machinery, and instruments, not the same as capital imports in Equations 15-7 and 15-8), LDCs run an export surplus. The

TABLE 15-1. Mexico's International Balance of Payments, 2001 ($ billion)

	Goods and services account	Current account	Capital account (+ increases in foreign liabilities)
	(− Debits or Payments)		
Merchandise exports	+158		
Merchandise imports	−168		
Service exports minus service imports (net travel, transport, investment income, and other services)	−17		
Balance on goods, services, and income	−27		
Net grants, remittances, and unilateral transfers	+9		
Balance on current account		−18	
Net capital inflows			+11
Net official reserve asset change			+7
		−18	+18

Figures are rounded off to the nearest billion U.S. dollars.
Source: International Monetary Fund 2002a:574–578.

World Bank estimates that foreign capital as a share of LDC total capital formation was 10–20 percent in the 1960s and 1970s, although this share declined to 8–12 percent in the 1980s, 1990s, and first decade of the 21st century (World Bank 1984i:226–227, 1988i:230–231, 1994i:178–179, 2003h:16, 220, 332).

But when a country imports capital, domestic saving declines. Two economists who have noticed this relationship argue that using foreign capital makes a country less thrifty. They suggest that foreign capital distorts the composition of capital, frustrates indigenous entrepreneurship, and inhibits institutional reform (Griffin and Enos 1970:313–327).

Their explanation is wrong. A careful look shows that an increase in capital inflow associated with a decrease in domestic saving occurs because of the way economists define these aggregates. From Equation 15-8,

$$S = I - F \qquad (15\text{-}9)$$

where S is saving, I is investment, and F is capital imports. Investment does not rise because the increase in capital formation from the capital inflow is counterbalanced by the negative foreign investment, or an increase in foreign claims on the country.

Two Gaps

Hollis Chenery and Alan Strout (1966:679–733), in a model based on empirical evidence from 50 LDCs from 1957 to 1962, identify three development stages in which growth proceeds at the highest rate permitted by the most limiting factors. These factors are (1) the skill limit (see Chapter 11 on inability to absorb additional capital), (2) the savings gap (investment minus savings), and (3) the foreign exchange gap (imports minus exports).

In stage 1, foreign skills and technology reduce the skill limit. The authors, however, focus on stage 2, investment-limited growth, and stage 3, trade-limited growth – both stages in which foreign aid and capital can reduce the gap that limits accelerated growth.

But why differentiate between the two gaps, as Equations 15-7 and 15-8 imply that the *actual* savings gap is always equal to the *actual* foreign exchange gap? The answer is that gap analysis does not focus on *actual* shortages but, rather, on discrepancies in plans between savers and investors, and exporters and importers. Planned saving depends on income and income distribution, but planned investment is determined by the expected rates of return to capital. Export plans depend on international prices and foreign incomes, but import plans are determined by international prices, domestic income, and income distribution. Given the independence of decisions, it is not surprising that the excess of planned investment over saving might differ from the amount that planned imports exceed exports.

Chenery and Strout's evidence indicates that at early development stages, growth is likely to be investment limited. If planned investment minus planned saving is greater than planned imports minus planned exports at a given GNP, then all the investment will not be realized. Actual investment equals actual saving plus foreign borrowing at a lower level of GNP than would have been realized if there had been a small savings gap. The required foreign assistance equals the larger of the two gaps, the savings gap. This import of capital will remove the limitation that investment places on growth.

If, by contrast, the foreign exchange gap is larger than the savings gap, imports will fall, reducing the foreign capital and inputs available for the development effort. In this case, growth is trade limited. Capital imports equal to the foreign exchange gap will remove the limitation that trade places on growth.

In reality, foreign borrowing reduces both the savings and foreign exchange gaps by equal amounts. A machine acquired by international transfer represents both an import for which no foreign exchange needs to be expended and an investment good that does not have to be offset by domestic saving.

The Chenery–Strout three-stage approach only approximates reality in the many LDCs, where the three limitations often coexist or interact with one another. In fact, limits may vary from one sector to another. One sector may be limited by a savings gap, another by a foreign exchange gap, and a third by a skill constraint.

Furthermore, the two-gap analysis, which focuses on an aggregate approach, does not look at specific needs that foreign funds can meet. Moreover, the emphasis on external development limitations diverts attention from technology or on internal

economic factors that are often important constraints on growth. Nevertheless, the Chenery–Strout three-stage and two-gap approaches, even though stereotypical, can be useful tools in analyzing foreign capital requirements in a number of different LDCs (Meier 1976:333–344; Kindleberger and Herrick 1977:296–298; Meier 1980:331–334).

Stages in the Balance of Payments

As we have said, foreign loans enable a country to spend more than it produces, invest more than it saves, and import more than it exports. But eventually the borrowing country must service the foreign debt. Debt service refers to the interest plus repayment of principal due in a given year. Sometimes a country can arrange debt relief, convert debt into equity, or postpone payment by rescheduling the debt or borrowing in excess of the debt due for the year (see Chapter 16). Despite potential economic sanctions and credit restraints, a country may, in rare instances, repudiate its debts or simply default as Argentina in 2001–03 or sub-Saharan Africa did on more than half its scheduled debt in 1990 (Nafziger 1993:17).

Paying back the loan requires a country to produce more than it spends, save more than it invests, and export more than it imports. Doing this need not be onerous, however. In fact, it is typical for a newly industrializing country to encounter a growing debt. The United States, from the Revolutionary War until after the Civil War, was a young and growing debtor nation, borrowing from England and France to finance an import surplus for domestic investments, such as railroads and canals. However, the United States proceeded to a subsequent stage, mature debtor nation, 1874 to 1914, when the economy's increased capacity facilitated the export surplus to service the foreign debt. Similarly, contemporary industrializing countries effectively using capital inflows from abroad should usually be able to pay back loans with increased output and productivity. (See the last section of this chapter, which analyzes the present-day United States, the world's largest international debtor, whose debts do not fit into this balance of payments stages theory.)

Sources of Financing the Deficit: Aid, Remittances, Foreign Investment, and Loans

Exports minus imports of goods and services equal the **international balance on goods, services, and income.** Aid, remittances, loans, and investment from abroad finance a LDC's balance on goods and services deficit.

Both oil-importing developed and developing countries had a deficit in 1974, mainly as a result of the quadrupling of oil prices over four months in 1973 and 1974. However, from 1975 through 1980, when the DCs had surpluses, the oil-importing LDCs had deficits. These deficits continually increased over this period (except for 1976 and 1977), and middle-income LDCs had higher deficits, partly because oil comprised a larger proportion of their total imports than was the case in low-income countries. Middle-income countries' larger deficit was financed disproportionately by

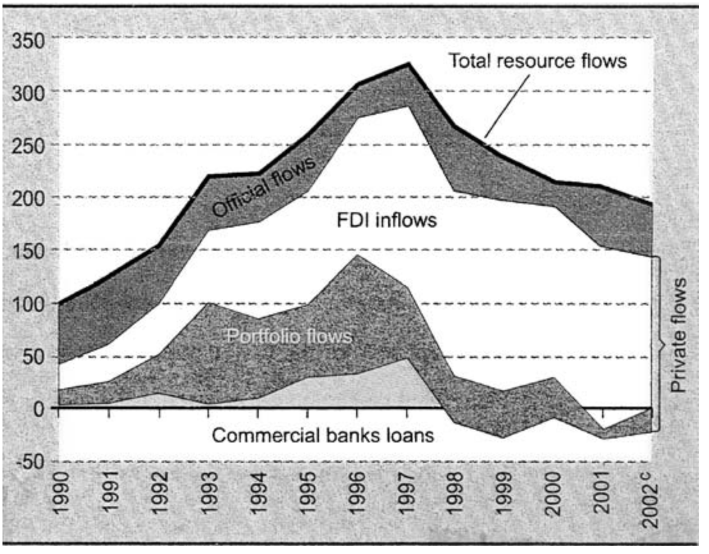


FIGURE 15-1. Total Resource Flows[a] to Developing Countries[b] by Type of Flow, 1990–2002 (billions of dollars). *Source:* UNCTAD 2003d:4.

[a] Defined as net liability transactions or original maturity of greater than one year.

[b] The World Bank's classification of developing countries is different from that of UNCTAD. Central and Eastern Europe is included in the former classification.

[c] Preliminary.

commercial loans, with low-income countries receiving primarily aid (World Bank 1981i:4–63).

From 1981 to 1999, LDCs had a deficit every year. The deficit increased during the recessions in the United States and in other DCs, 1981–82, but fell from 1983 to 1990; in the 1990s, the deficit increased again through 1993. From mid-1998 to 2003, as borrowers chose or were required by creditors to pay down debts (World Bank 2003e:8), total resources to finance deficits of LDCs fell (Figure 15-1) and they ran surpluses. Oil-exporting countries had surpluses, 1980 to 1986, but these balances shifted to deficits from 1987 to 1995 (except 1990), as real oil prices virtually collapsed (Figure 13-1).

The major sources of financing, loans at bankers' standards, declined during most of the 1980s (table in Nafziger 2006b), as commercial banks became more cautious with loan writeoffs, write-downs, and asset sales by several highly indebted LDCs. Low-income countries received fewer foreign capital resources, as their primary source, aid, as a percentage of GNP declined in the major donor group, the Organization for Economic Cooperation and Development (OECD). However, loans at bankers' standards, primarily to East Asia, Southeast Asia, Latin America, the Middle East, and Eastern Europe, increased during the early 1990s and the early years of the 21st century.

CONCESSIONAL AID

Aid, or **official development assistance (ODA)**, includes development grants or loans (with maturities of more than one year) to LDCs at concessional financial terms by official agencies. Military assistance is not considered part of official aid, but technical cooperation is.

The grant element of aid. Economists distinguish **concessional loans**, which have at least a 25-percent **grant element**, from loans at bankers' standards. In 2001, the average grant component of the **bilateral aid** (given directly by one country to another) member countries of the OECD gave to developing countries was 93.8 percent. Of the $51.4 billion the OECD contributed, $41.0 billion was outright grants. In addition, loans totaling $10.4 billion had a grant component of 69 percent, or $7.2 billion. (The grant element of the loan depends on how much the interest rate is below an assumed commercial rate of 10 percent, the length of the grace period in which interest charges or repayments of principal is not required, how long the repayment period is, and the extent to which repayment is in local, inconvertible currency.)

Calculating the grant component of OECD aid or ODA to developing countries in 2001 is fairly simple. Adding the product of $41.0 billion multiplied by 1.00 (the grant component of gifts) to the product of $10.4 billion multiplied by 0.69 (the grant component of loans) equals $48.2 billion, the total grant element of aid (grants plus loans). Divide $48.2 billion by $51.4 billion (total aid) to equal 0.938, the grant component of aid to developing countries (OECD 2003b).

OECD aid. During the 1980s, OECD countries contributed four-fifths of the world's bilateral (and almost three-fifths of all) official development assistance to LDCs. However, in the early 1990s, after the collapse of centralized socialism and a decade or so of falling surpluses in the Organization of Petroleum Exporting Countries, the OECD contributed 98 percent of all aid (with OPEC providing 2 percent).[4] The OECD aid increased from $6.9 billion in 1970 to $8.9 billion in 1973 to $13.6 billion in 1975 to $26.8 billion in 1980, but declined to $25.9 billion in 1981 and to $21.8 billion in 1985, before increasing to $47.1 billion in 1988 and $60.8 billion in 1992, but declined to $56.0 billion in 1993 and $51.4 billion in 2001. As a percentage of GNP, it dropped from 0.34 percent of GNP in 1970 to a post-1960s low of 0.30 percent of GNP in 1973. In 1975, this figure increased to 0.33 percent and in 1980 to 0.37 percent before declining to 0.35 percent in 1985, but rebounding to 0.39 percent in 1986, but fell to 0.34 percent in 1988 and 0.33 percent during all three years, 1990–92, before declining to 0.30 percent in 1993 and 0.22 percent in 2001. The most recent figures cited are less than half of the 0.70 percent target the OECD accepted in the 1990s for LDCs and a fraction of the 0.20 percent for

[4] During peak years in the 1970s and early 1980s, OPEC countries contributed one-fourth and the socialist countries of the Soviet Union and Eastern Europe one-seventh of world ODA. In 1993, China, South Korea, Taiwan, Turkey, Egypt, India, Israel, and a growing number of other countries provided ODA. However, countries outside OPEC and the high-income OECD provided only a small fraction of 1 percent of global ODA in 1993 (OECD 1995:107; Nafziger 1990:357–58).

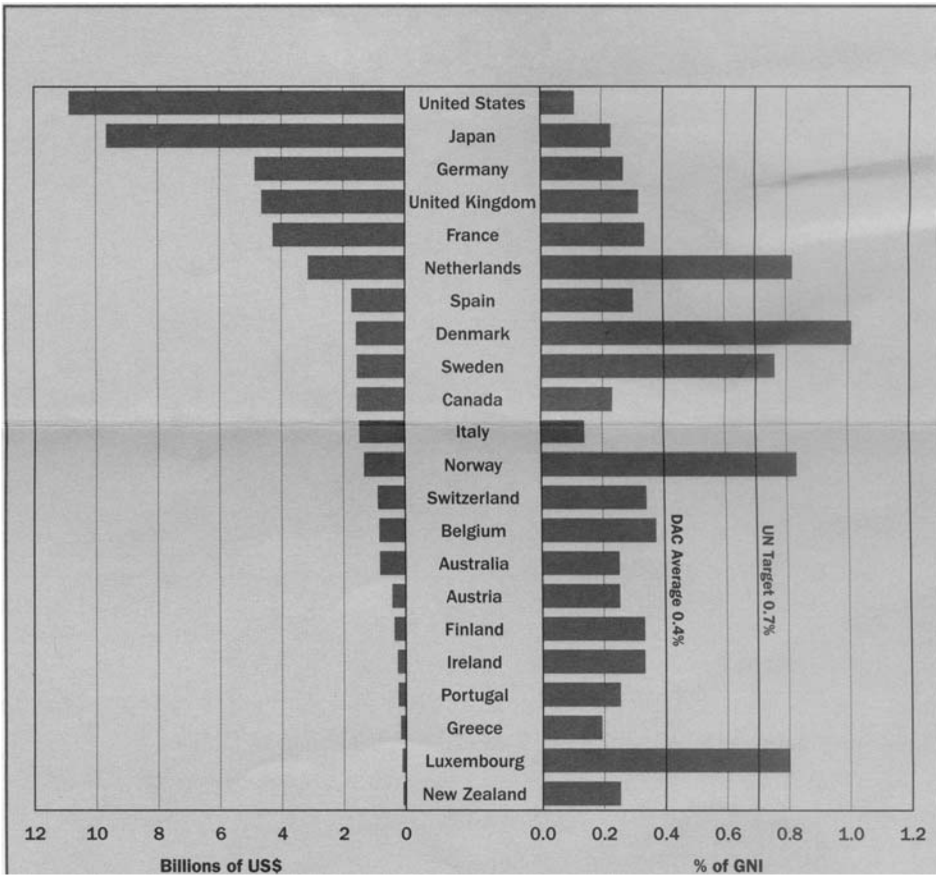


FIGURE 15-2. Aid Flows, 2001.[a] *Note:* DAC Members have progressively introduced the new System of National Accounts that replaced gross national product (GNP) with gross national income (GNI). As GNI has generally been higher than GNP, ODA/GNI ratios are slightly lower than previously reported ODA/GNP ratios.
[a] Aid refers to net ODA. 2001 data are provisional. *Source:* OECD 2002b:1.

least-developed countries.[5] In 2001, only Denmark, Norway, Sweden, the Netherlands, and Luxembourg exceeded the target for LDCs (see Figure 15-2).

Although annual U.S. foreign aid (ODA) in the 1960s, 1970s, and 1980s was larger than that of any other country, from 1993 to 2000, Japan gave more foreign aid than any other country (Figure 15-3), before relinquishing the lead to the United States again in 2001 (not shown). As a percentage of GNI (0.11 percent), foreign aid in the United States ranked last among OECD members. The U.S. citizens spent more on participant sporting activities and supplies in a year than their government spends annually on foreign aid. Furthermore, aid as a percentage of GNP in the United States declined steadily with 0.50 percent in 1965, 0.32 percent in 1970,

[5] In 1961, U.S. President John F. Kennedy proposed that the 1960s be the First Decade of Development. Although he pledged that the United States would devote 1 percent of its GNP to the effort, the U.S. share has never exceeded half that share (Piel 1995:13–22).

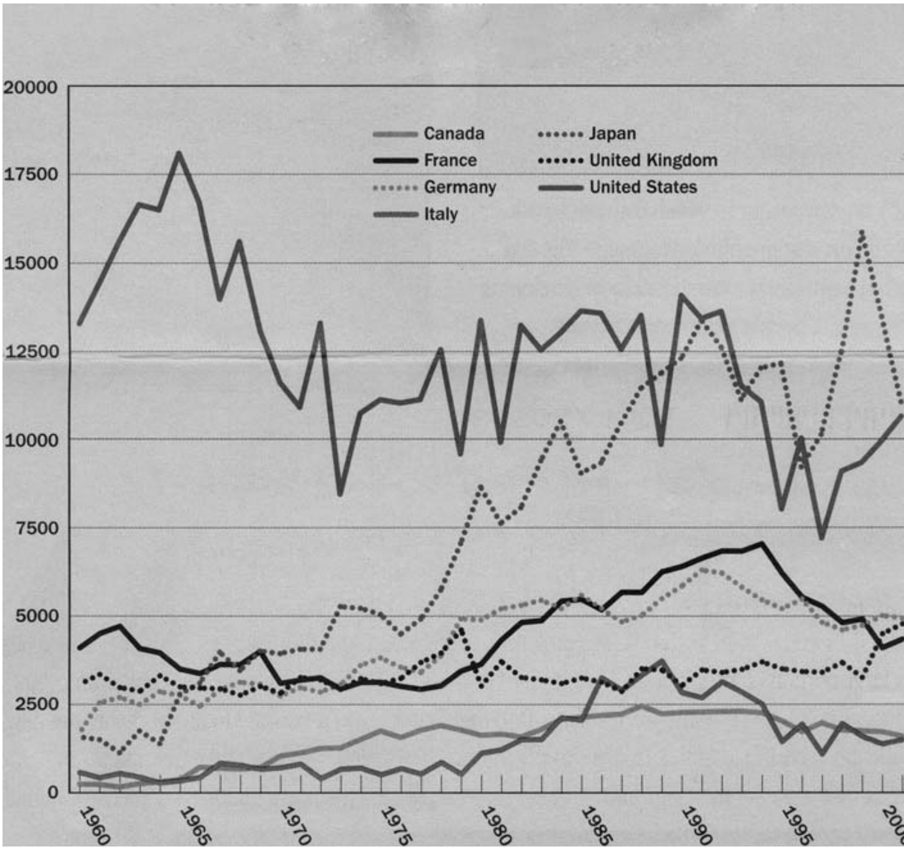


FIGURE 15-3. G-7 Aid to Developing Countries (millions of US$, 1960–2000). *Note:* At 2000 prices and exchange rates. *Source:* OECD 2002b:3.

0.26 percent in 1975, 0.27 percent in 1980, 0.24 percent in 1985, 0.21 percent in 1988, 0.20 percent in 1991, 0.15 percent in 1993, and 0.11 in 2001. During the same period, *other* OECD countries maintained an aid to GNP percentage in excess of 0.40 percent before falling to 0.39 percent in 1992 and 0.38 percent in 1993 and 0.30 percent in 2003. The real value of U.S. aid dropped from the 1960s to the 1970s, then leveled out in the 1980s, but fell again in the 1990s. In the rest of the OECD countries, real aid increased continually from the 1960s before dropping slightly in the 1990s (Overseas Development Council 1982; OECD 1995; OECD 2002b).

Why give aid? Development assistance is under renewed attack. Traditional critics view it as too softhearted to be hardheaded. Some leftists see aid as imperialist support for repressive LDC regimes, rather than as a way of spurring economic development for the masses. Critics of all persuasions charge that aid is ineffective: It does not do what it sets out to do.

Let us examine this issue more carefully. Foreign aid's purpose is usually to promote the nation's self-interest. Economic aid, like military assistance, can be used for strategic purposes – to strengthen LDC allies, to shore up the donor's defense installations,

to improve donor access to strategic materials, and to keep LDC allies from changing sides in the international political struggle. Assistance can be motivated by political or ideological concerns – to support a military ally; influence behavior in international forums (see below on U.S. support for IMF lending); to strengthen cultural ties; or to propagate democracy, capitalism, or Islam. (A political and strategic motivation – to promote democracy and private enterprise and minimize Soviet influence in the third world – was important in congressional approval of President Harry Truman's call in 1949 for U.S. "Point Four" economic assistance to LDCs.) Furthermore, aid supports economic interests by facilitating private investment abroad, improving access to vital materials, expanding demand for domestic industry, and subsidizing or tying exports.

Tied aid, as it prevents the recipient country from using funds outside the donor country, is worth less than its face value. In some instances, aid may be tied to importing capital-intensive equipment, which may reduce employment in the recipient country. Tied aid was 19.2 percent of OECD aid in 2000 but 75.7 percent of U.S. aid in 1996, the last year of report (OECD 1995:29; OECD 2002b:5).[6]

Some aid – emergency relief, food aid, assistance for refugees, and grants to least-developed countries – is given for humanitarian reasons. Most OECD countries have a small constituency of interest groups, legislators, and bureaucrats pressing for aid for reasons of social justice. For example, some of the support for Point Four and subsequent aid came from humanitarian groups in the United States.

It is difficult to separate humanitarian motives from the self-interested pursuit of maintaining a stable, global political system. DCs have an interest in pursuing a world order that promotes capitalist development and global integration and avoids war (especially a nuclear holocaust), acute world population pressures, widespread hunger, resource depletion, environmental degradation, and financial collapse. Economic aid is one aspect of this drama.

Many of the major aid recipients of the United States represent countries that the United States considers important strategic interests (see Table 15-2). In 1994, the U.S. Agency for International Development (1994, summarized in Population and Development Review 1994b:483–487) tried to identify strategic, humanitarian, and economic interests in United States aid. Long-term objectives of aid included encouraging broad-based economic growth, promoting peace, building democracy, promoting U.S. prosperity through trade, protecting the environment, providing humanitarian assistance, aiding postcrisis transition in the former socialist countries, stabilizing world population growth, and protecting human health. AIDs and other epidemic diseases, and drugs, such as cocaine, marijuana, and heroin, reflect threats to the quality of life in DCs, as well as LDCs. In 2004, USAID emphasized "promoting democracy and good governance," including strengthening the rule of law and respect for human

[6] Joel Waldfogel, "Deadweight Loss of Chistmas [Giving]" (1993:1328–1336), argues that much of the gift from a giver to a recipient, like tied aid, is likely to represent deadweight loss. The recipient, who receives a gift worth $1,000, is most likely to be worse off than with an unfettered choice of spending with an equal amount of cash. The journalist Ross Gittins (2003) considers Waldfogel's effort as part of the foolishness of economists, more in keeping with the spirit of Scrooge.

TABLE 15-2. US Top 10 Recipients of Aid (millions of US$, 2000)

Russia (OA)	1,154
Israel (OA)	967
Egypt	799
Ukraine (OA)	282
Indonesia	194
Jordan	179
Colombia	169
Bosnia and Herzegovina	152
India	148
Peru	136

Note: Aid refers to gross bilateral official development assistance (ODA) and official aid (OA).
Source: OECD 2002b:5.

rights, promoting competitive elections, supporting a politically active civil society, and facilitating more transparent and accountable governance.

Major motives for Japanese aid are international responsibility as a major world economic power, export promotion, resource acquisition, overall economic security, bilateral influence, and recipient political stability. Japan's aid programs are biased toward Asia – Indonesia, China, Philippines, Thailand, India, Pakistan, Bangladesh, South Korea, Malaysia, Vietnam, Sri Lanka, and Nepal – and a smattering of Latin and African countries (see Figure 15-4 for top recipients of foreign aid by OECD countries). A low proportion of Japan's aid goes to least-developed countries, which are primarily in Africa. Japan's aid also focuses on loans, so the grant element of aid is low.

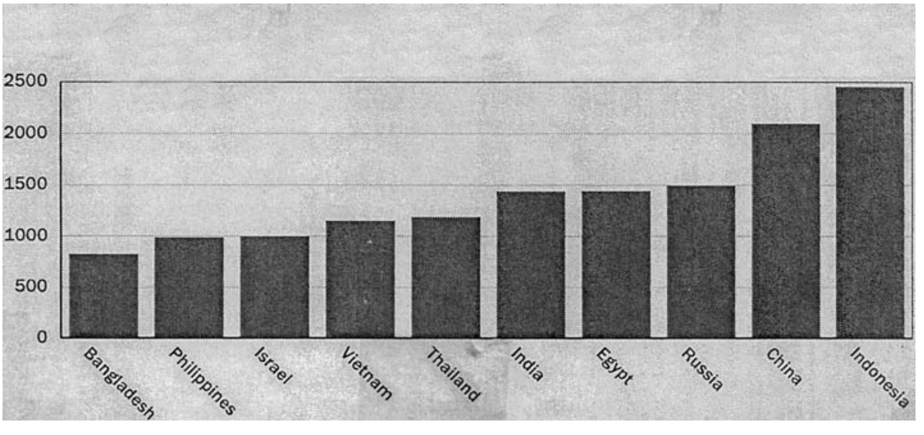


FIGURE 15-4. OECD Top 10 Recipients of Foreign Aid (millions of US$, 2000). *Note:* Aid refers to gross ODA and OA. *Source:* OECD 2002b:2.

Despite Japan's leadership in aid expenditures, aid programs in Japan are understaffed, politically muddled, and administratively complex. The programs are fragmented into competing ministries that are excessively centralized, yet no ministry has total oversight of the program (Rix 1993; OECD 1995).

Japan's historical memory of rapid economic growth through using strong internal leadership and control to learn and adapt from the West has shaped Japan's foreign aid programs. A strong emphasis by Japan, which attributes its economic success to self direction, is to promote self-reliance among its aid recipients. The Keidanren, Japan's Federation of Economic Organizations, the main business grouping in Japan and a major contributor to Japan's aid philosophy, argues that Japan's aid "is based on the belief that the developing countries themselves should play the leading role in their economic development and that Japan's [overseas development assistance] is designed to complement their self-help efforts to end poverty" (Rix 1993:38–39).

Still, we cannot take the Keidanren's and aid officials' stress on recipient self-reliance totally at face value, as some of Japan's foreign economic policies in Asia foster dependence, as Chapter 17's discussion on the Asian borderless economy indicates. Indeed, we generally need to be skeptical of DCs' stated goals: critics doubt that U.S. aid and foreign policy promote peace, human rights, and democracy.

Aid to enhance global public goods. Global public goods provide an especially strong argument for foreign aid. As pointed out in Chapter 13, the atmosphere and biosphere are **global public goods**, because nations cannot exclude other nations from the benefits of their conservation or from the costs of their degradation. In addition, family-planning programs (Chapter 8) and programs that further long-run economic sustainability and global peace and security also have global public goods components.

The effectiveness of aid. How effective has aid been? In some instances, aid has exceeded an LDC's capacity to absorb it. Moreover, aid can delay self-reliance, postpone essential internal reform, or support internal interests opposed to income distribution. Specifically, food aid can undercut prices for local food producers.

William Easterly (2001b), when a World Bank economist, contended that billions of dollars in DC government, World Bank, and IMF aid had been squandered on poorly designed programs. Lending based on an LDC's meeting conditions of economic reform and good governance, instead, contributed to widespread zero per-capita growth and a failure to adjust. Governing elites of recipient governments, with an emphasis on power rather than development, "were afraid to invest in the masses that might demand their share of power." By contrast, according to Easterly, lenders had incentives to continue to lend or aid to maintain the aid bureaucracy and to support political allies, even when recipients' corruption and poor governance "destroyed any hope of economic growth." For Easterly (2001b), the initiative to forgive debts, a form of aid, supported by Bono, the Dalai Lama, Pope John Paul II, and George W. Bush, to highly indebted poor countries (HIPCs) is "pouring good money after bad. If government mismanaged the original loans, will they manage

wisely the proceeds of debt forgiveness." For unauthorized media publication of his views, the World Bank undertook a disciplinary investigation against Easterly (Kahn 2001), who left the Bank for New York University and Washington's Center for Global Development.

Elliott R. Morss argues that the effectiveness of aid to sub-Saharan Africa declined after 1970, as aid programs placed more burden on scarce local management skills and put less emphasis on recipients' learning by doing. After 1970, donors switched from program support (for example, to infrastructure or agriculture) to project assistance, which entailed more specific statements of objectives and means of attaining them, more precise monitoring and evaluation, more foreign control over funds, and more local personnel and resources committed to projects. Furthermore, each of the major bilateral, multilateral, and nongovernmental organizations has competing requirements.

Research finds that ODA is not associated with economic growth. Indeed many poor countries, such as Bangladesh, Malawi, and Ethiopia are hampered by a high dependence on aid, defined by Riddell (1996) as the process by which aid makes no significant contribution to self-sustained development. This dependency includes food and commodity aid that competes with domestic production, and, for some LLDCs, aid flows large enough to contribute to an overvalued currency that is biased against exports.

When donors underwrite most of the development budget, they insist on continual, extensive project supervision and review, so that recipient government agencies are more answerable to them than to their own senior policy officials. Donors frequently recommend and supervise poorly conceived projects. But even when well conceived, LDC officials fail to learn how to do something until they have the power to make their own decisions. Morss argues that the proliferation of donors and requirements has resulted in weakened institutions and reduced management capacity. For example, in 1981, Malawi, lacking the indigenous capacity to manage 188 projects from 50 different donors, hired donor country personnel (sometimes with donor salary supplements) to take government line positions to manage projects. However, Malawi did not increase its capacity to run its own affairs and establish its own policies (Morss 1984:465–470).

Tanzania, by contrast, retained its best economic analysts at home in the late 1980s and early 1990s, but "the price of keeping top professionals at home [was] to see them absorbed into the domestic consultancy market, sustained by donor-driven programmes of [technical assistance]" (Sobhan 1996:119). Sobhan (1996:111–245) points out that the opportunity cost of this cooption by the donors was diversion from contributions to teaching and domestic policy debate and initiative. But the cost of aid in reduced domestic initiative and technical learning may be at least as great for other highly vulnerable low-income countries as for Malawi or Tanzania.

However, the problem is not so much the size of aid flows as the manner in which ODA is given and utilized. Aid is likely to be more effective if it strengthens economic policy. UNCTAD (2002b) argues, however, that IMF and World Bank aid conditioned on orthodox structural adjustment policies that are a part of the Washington

Consensus (Chapter 5) imposed externally is counterproductive. UNCTAD emphasizes national ownership, with policies to reduce poverty domestically formulated and implemented rather than by DC governments, the IMF, and the World Bank. Any conditions set by the donor should be derived from national priorities and oriented toward long-term growth strategies.

Moreover, aid flows to poor countries are complicated by high conditionality, and "are both volatile and unpredictable" (FitzGerald 2002:76). Aid agencies should not emphasize stand-alone projects but donor coordination reflecting long-term program coherence and an orientation toward increasing productive capacity, providing infrastructure, and reducing poverty and communal inequality. Donors also need to emphasize aid to ruling groups, economic classes, and communities that have strong incentives to increase political integration and improve the living standards of the poor.

Increasing aid effectiveness. DCs can increase aid efficacy if they select recipients with well-developed institutions and policies and oriented toward development and economic reform. Even Easterly wants his criticism to contribute to higher quality programs and a cessation of aid to corrupt or predatory governments rather than to be used by countries, such as the United States, for stinginess. He states: "Rich countries should [not] use the past record as an excuse, because it's mainly their own fault. If the U.S. had cared whether aid was helping people rather than creating markets it might have performed better" (*World Bank Development News*, "Commentary on Aid Effectiveness," March 22, 2002).

I mentioned the need for aid to produce global public goods or build indigenous skills. Other forms of aid are for food and agricultural development (discussed later in the chapter) or as debt relief (Chapter 16). Here I discuss assistance in cushioning the effects of sudden external shocks.

In Africa, an external debt crisis, with declining terms of trade, global credit tightening, and falling debt relief and concessional aid from the West, forced austerity and declining living standards in the 1980s and 1990s, putting additional pressure on African governments and economies.

The IMF uses its compensatory and contingency financing facility to finance a temporary shortfall in export earnings or to bolster IMF-supported adjustment programs. This facility, however, is a drop in the bucket compared to the needs to rescue countries, such as African low-income economies that experience temporary external shocks. Despite limited funding, the EU's Stabex, which covered 48 primary products from 66 ACP countries from 1975 to 2000, was a more effective program for cushioning external shocks. However, in 2000, the European Union discontinued Stabex, folding it into a general aid program combining support for adjustment, project aid, good governance, and price stabilization (Brown 2000). Discontinuance was wrong, as DCs need to provide a larger share of loans and concessional aid to reduce the vulnerability of LICs to external shocks and their effect on GNI and poverty.

Reasons for the decline in aid. In 1995 the OECD chided the United States for setting a poor example by cutting its aid budget and warned that the move might

contribute to other OECD countries following suit. In blunt language, the OECD indicated that the U.S.'s "seeming withdrawal from traditional leadership is so grave that it poses a risk of undermining political support for development cooperation" by other donor countries (Greenhouse 1995:4; OECD 1995).

How do we explain what James H. Michel, Chair of the OECD's (1995:1) Development Assistance Committee, called the "sharp decline in spending by the industrialized democracies for official development assistance." We can only speculate about the reasons. For the United States, political influence has declined dramatically since 1946, when Europe and Japan were war devastated and few LDCs were independent, so U.S. economic aid has come to have less influence, too. In any event, the post–1970 U.S. Congress, and at times the president, were increasingly skeptical about aid's value in strengthening allies, influencing international behavior, improving U.S. access to markets and raw materials, promoting capitalism, maintaining global stability, and building a world order consistent with U.S. preferences. Indeed, Michel suggests that Americans and other DCs lack "a firm conviction . . . that increasing the security of the people who inhabit the developing world is a major and concrete part of meeting . . . threats" to the North's quality of life. In the United States, even some liberals, churches, and humanitarian organizations traditionally in favor of economic aid stopped supporting it in the 1980s and 1990s because they increasingly perceived it as benefiting large U.S. corporations and conservative countries suppressing human rights.

Moreover, aid levels have fallen with the end of the Cold War and the competition for influence between the West and Russia. Russia substantially reduced its aid to LDCs, with the collapse of socialism and subsequent negative growth in the 1990s. Additionally, DCs have allocated aid to Eastern Europe and the former Soviet Union in their transition to market economies at the expense of the developing countries of Africa, Asia, and Latin America. Germany has shifted its emphasis to reintegrating its eastern states within the federation, and the European Union is focusing more on economic opportunities within Eastern European member states.

Furthermore, the United States and other OECD countries have achieved many of their goals through means other than aid – specifically through their dominant shares in two major international financial institutions, the IMF and World Bank. The conditions set by these lending institutions have spurred LDCs and Eastern Europe to undertake market reforms, stabilization, privatization, and external adjustment that high-income OECD countries want.

Aid to low- and middle-income countries. Real concessional aid to LDCs rose from \$31.3 billion in fiscal year 1972–73 to \$48.2 billion in 1982–83 to \$59.1 billion in 1992–93 before falling to \$44.4 billion in 2000–01 (in 1992 prices). The share of low-income countries (LICs) in total aid increased from about half in 1972–73 and 1982–83 to 73 percent in 1992–93 but fell to 30 percent in 2000–01 (see least-developed countries and other low-income countries, Figure 15-5), an indication of an initial allocation away from relatively prosperous middle-income countries (MICs) in the 1980s and early 1990s but a return to them (44 percent in 2000–01)

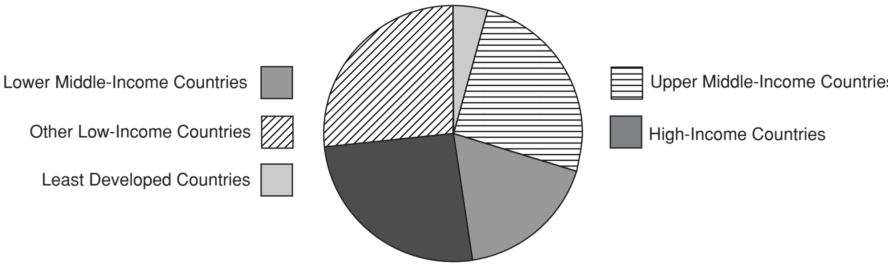


FIGURE 15-5. Aid by Income Group (millions of US$, 2000). *Note:* Aid is gross bilateral ODA. Income groupings are presented according to the DAC List of Aid Recipients (as of January, 2000). *Source:* OECD 2002b:2.

and high-income countries (HICs 26 percent) recently. A sample of aid recipients includes LICs – Afghanistan, Indonesia, India, Pakistan, Bangladesh, Indonesia, Vietnam, Uganda, Tanzania, Nigeria, and most of the rest of sub-Saharan Africa; MICs – Colombia, Chile, Brazil, Mexico, Peru, Russia, Poland, Hungary, Czech Republic, South Africa, Egypt, Jordan, China, and Philippines; and HICs – Israel, Kuwait, Libya, Singapore, South Korea, Slovenia, and Malta.[7] Although international agencies emphasize aid to low-income countries, their share of aid has been low, suggesting that alleviating the poverty of the poorest countries is not a high priority.

In 1992–93, 37 percent of the aid went to sub-Saharan Africa, the region with the largest number of least-developed countries; 27 percent to Asia; 13 percent to Latin America, with only one least-developed country; and 23 percent to the Middle East, with no least-developed countries. In 1999–2000, Europe's (mostly transitional countries') share increased to 13 percent, while sub-Saharan Africa had 33 percent, Latin America 21 percent, Asia 26 percent, and the Middle East 7 percent. Low-income countries listed as top aid recipients in Table 15-2 and Figure 15-4 include only Vietnam, India, Indonesia, and least-developed Bangladesh (OECD 1995; OECD 2002b).

Low-income countries received $10 official development assistance per capita in 2001, and middle-income countries $8. Donors, however, gave only $0.01 aid per capita to China and $0.04 to India, whose populations comprise 44 percent of developing countries. (Donors defend this small figure on the grounds that these two countries could not be given as much as other low-income countries without destroying the effectiveness of the flows to other recipients.) If India and China are excluded from LDCs, per-capita assistance is $17 for low-income countries and $15 for middle-income countries (World Bank 2004c:252–253, 260–261).

Aid to low-income countries (excluding India) was 18 percent of their gross investment and 4.3 percent of GNI in 2002. This percentage of GNI is 11 times as high as the proportions for both India and middle-income countries. For Eritrea, a country of four million, aid was 41 percent of GNI! For Mozambique, a country of 18 million,

[7] In March 2004, the World Bank celebrated Slovenia's graduation from recipient to donor (*World Bank Development News*, March 18, 2004).

aid was 28 percent of GNI; for Honduras, a country of 7 million, aid was 11 percent of GNI (World Bank 2004f:260–261).

Multilateral aid. In 2001, $18.5 billion, 36 percent of OECD development assistance (and 0.08 percent of GNP), went to multilateral agencies, those involving several donor countries. For the United States, in 1997 20.0 percent of ODA (and 0.02 percent of GNP) went to these agencies (United States Congressional Budget Office 1997; European Union 2004). In 1992, the rank order of concessional aid by major multilateral agencies was the **International Development Association** (**IDA**, the World Bank's concessional window, primarily for low-income countries, which has usually extended credit for 50 years, with a 10-year grace period, no interest charge, and a nominal service charge), $4.8 billion; the Commission of the European Communities (CEC, for aid primarily to the European Community's former colonies in Africa, the Caribbean, and the Pacific), $4.2 billion; the World Food Program; the U.N. Development Program; the U.N. High Commission for Refugees; the Asian Development Fund; UNICEF (the United Nations Children's Fund); the IMF soft-loan window; the African Development Fund; and the U.N. Relief and Works Agency (OECD 2002b).

The overwhelming share of IMF resources is for loans at bankers' standards. However, IMF concessional funds include member contributions (but rarely the United States) for structural adjustment facilities, discussed in Chapter 16, and a trust fund from the sale of IMF gold. Donor countries and agencies often form a funding consortium, frequently under World Bank auspices; a fractional share for concessional aid can soften the overall payment terms of the financial package. Multilateral agencies and consortia generally coordinate technical and financial contributions of individual donor countries with one another and with the recipient's economic program. Aid administered in this way reduces the amount of bidding donor countries make for favors from recipient countries and softens adverse political reactions if a particular project fails.

Congress members sometimes object to U.S. loss of donor control over aid channeled through multilateral agencies and consortia. Other OECD members, however, perceive the United States as dominant in shaping the Washington consensus (Chapter 5) that establishes policies for multilateral agencies and consortia. The United States, as the largest shareholder, can veto loan or concessional funds from the IMF or World Bank. And, as Chapter 16 indicates, some LDCs think the United States and other DCs use external resources to set conditions for LDC domestic economic policies by requiring an IMF "seal of approval" before OECD countries, their commercial banks, or multilateral agencies will loan, aid, or arrange debt rescheduling and writeoffs.

Food aid. The economist stressing basic-needs attainment is quite interested in food as foreign aid. As indicated in Chapter 7, there is more than enough food produced each year to feed adequately everyone on earth. However, food is so unevenly

distributed that malnutrition and hunger exist in the same country or region where food is abundant.

During the 1960s, the United States sold a sizable fraction of its agricultural exports under a concessionary Public Law 480, in which LDC recipients could pay for the exports in inconvertible currency over a long period. The U.S. real food aid, as well as food reserves measured in days of world consumption, dropped from the 1960s to the 1970s, 1980s, and early 1990s, partly because U.S. farm interests wanted to reduce surplus grain stocks. In addition, agriculture suffered disproportionately from the decline in LDC aid in the late 1980s and 1990s, as real aid to developing-country agriculture declined from $19 billion in 1986 to $10 billion in 1994 (Pinstrup-Andersen, Pandya-Lorch, and Rosegrant 1997:27).

Food and agricultural aid (including that from the United States) increased in real terms from the late 1960s to the late 1970s and 1980s. However, annual food aid in the 1970s, 1980s, and 1990s was below that of the early 1960s. In the late 1970s, 1980s, and 1990s, food and agricultural aid was one-fourth of worldwide economic aid. Although most of this was to increase LDC food and agricultural production, such aid cannot meet the most urgent short-term needs. Direct food aid is essential for meeting these needs.

In the 1980s and 1990s, about three-quarters of the food aid went to low-income countries; it amounted to about one-third of their cereal imports. Projections in Chapters 7 and 8 indicate that food deficits are likely to increase in the 21st century. Yet, in the 1980s and 1990s, the United States, which provides the bulk of total food aid, reduced its food assistance.

Critics of food aid argue that it increases dependence, promotes waste, does not reach the most needy, and dampens local food production. Nevertheless, food aid has frequently been highly effective. It plays a vital role in saving human lives during famine or crisis and if distributed selectively, reduces malnutrition. Unfortunately, poor transport, storage, administrative services, distribution networks, and overall economic infrastructure hinder the success of food aid programs, but the concept itself is not at fault. Furthermore, dependence on emergency food aid is less than that from continuing commercially imported food (Sewell, Tucker, and contributors 1988:235–240; OECD 1988:7–40).

Yet food aid programs need improvement. A World Bank (1986a) study, which contends that transitory food insecurity is linked to fluctuations in domestic harvests, world prices, and foreign exchange earnings, recommends that international donors emphasize supporting recipient programs safeguarding food security (especially for highly vulnerable people such as lactating women and children under five years), investing in projects that promote growth and directly benefit the poorest people, improving the international trade environment (including food price stabilization), and integrating food aid with other aid programs and national institutions and plans, whereas domestic governments should stress the redistribution of income to relieve afflicted people. The World Bank would not make food self-sufficiency a priority for the recipient LDC but emphasizes preventing substantial food price increases through imports if cheaper.

Moreover, local recipients should receive food they like. The Bank (1986a) suggests that recipient governments exchange donated food for cash and buy local foods, thus reducing transport costs and waste.

Given the reduction in other aid, the International Food Policy Research Institute (IFPRI) contends that:

> The substantial reduction in food aid deliveries . . . has disturbing implications for food security. The need for aid to combat food insecurity has not diminished. . . . Food aid will have an important role for some years, not only in addressing humanitarian emergencies but also in directing resources to many of the world's most vulnerable food-insecure people to help them permanently escape poverty and assure food security. (Pinstrup-Andersen, Pandya-Lorch, and Rosegrant 1997:26)

In light of these findings, OECD countries, especially the United States, need to restore the real value of food aid to the levels of the 1970s and 1980s (or even those of the 1960s), with a priority to least-developed countries. However, as IFPRI argues, donors should consider "gradually replacing program food aid with increasing cash assistance for commercial food import," because of the high transactions costs of most food aid (ibid.). Cash aid is **fungible**, meaning that money going for one purpose frees money for another purpose. The net impact, perhaps unintended, is to increase the recipient's real resources.

Food aid may disguise export subsidies or may be used to develop export markets or strategic goals, or to alleviate local government efforts at reform and self-sufficiency. Aid, when given in kind, may hurt local producers by lowering prices and changing diets. Moreover, aid agencies that distribute food outside existing indigenous commercial channels, as is usual, undermine these channels and disrupt movement of food from surplus to deficit areas of the local region and may increase future famines (World Bank 2004f:137).

Perhaps even more important than food assistance is a focus on long-term agricultural research and technology in developing countries. Only a small fraction of global agricultural research is spent on these countries. Developing countries need their own agricultural research, as many of their ecological zones (especially the arid and semiarid tropics) are quite different from those of the West. Food grain growth in India, Pakistan, the Philippines, and Mexico would not have exceeded population growth in the 1960s through the 1990s without the investment in improved packages of high-yielding seed varieties, fertilizers, pesticides, irrigation, improved transport, and extension.[8] A major priority for reducing long-term food insecurity and vulnerability to emergencies is for rich countries to restore their agricultural technical aid to real levels in the 1970s and 1980s.

[8] In some regions of these countries, research and development of high-yielding varieties of wheat and rice in the Green Revolution has had negative effects on income distribution, farm labor displacement, rural unemployment, and environmental degradation. However, the overall impact, including the effect on incomes and food supplies, generally has been positive (Nafziger 1997:227–229, 353–354).

WORKERS' REMITTANCES

World migration pressure is high and rising, analogous to a pent-up flood, increasing as the tap widens from increasing wage gaps between DCs and LDCs. In 2003, 175 million people were living outside their own country, an increase of 100 million compared to the figure in 1973 (World Bank Development News, January 7, 2004). The foreign-born population comprises a growing share of the population of major DCs, 5.4 percent in the European Economic Area (the European Union, Norway, Iceland, and Lichtenstein) and 10.4 percent in the United States in 2000 (World Bank 2004f:146–162). As indicated in Chapter 17, inflows of unskilled LDC workers to DCs reduces wages for unskilled labor but increases skilled workers' wages (World Bank 2003f:169–170).

Remittances from nationals working abroad help finance many LDCs' balance on goods, services, and income deficits. These remittances, from the oil-affluent Persian Gulf, from Latin American migrants to oil-exporting Venezuela, from neighboring countries' migrants to South Africa, Nigeria, and Gabon, and other LDC emigrations totaled $72.3 billion in 2001 (World Bank 2003e:158). In 1992, remittances as a percentage of merchandise exports were 187 percent in Ethiopia, 178 percent in Egypt, 86 percent in Jordan, 45 percent in Bangladesh, 30 percent in Sudan, 20 percent in Pakistan, 11 percent in India, 25 percent in Portugal, 24 percent in Greece, 89 percent in Benin, 161 percent in El Salvador, 8 percent in Mexico, 20 percent in Turkey, and 54 percent in Morocco. For most of the first seven countries listed, this percentage fell during the oil price slump of the 1980s and early 1990s. The last three countries are vulnerable to European and North American backlash to guest workers. The average propensity to save (saving/income) among Turkish and Pakistani emigrants was several times that of their domestic counterparts. The **average propensity to remit** (remittances/emigrant income) was still 11 percent for Turkish workers and 50 percent for Pakistanis, and enabled the living standards and investment rates of the emigrants' families to increase substantially (World Bank 1981i:51; World Bank 1994i:186–195).

Workers' remittances as a share of total inflows to LDCs were 24.9 percent in 2001, labeled a "brain gain" by the International Organization for Migration. Remittances were smaller than FDI but larger than international capital inflows (for the third year in a row) and, for most of the 1990s, larger than ODA (Figure 15-6). And even when capital inflows peaked, remittances tended to be at least half these inflows, as in the mid- to late 1990s.

By country income levels, low-income countries (LICs) were the largest recipients of remittances. In LICs, as a percentage of GDP, remittances were 26.5 percent in Lesotho, 16.2 percent in Nicaragua, 16.1 percent in Republic of Yemen, 15.0 percent in Moldova, 8.5 percent in Honduras, and 8.5 percent in Uganda. In 2002, Tajikistan migrant workers to Russia sent back $200–300 million, more than total government revenues. With most Tajiks living in poverty, funds from relatives abroad is vital (Economist 2003j:40). The absolute level of remittances was high in low-income India, Bangladesh, Pakistan and middle-income Egypt, Jordan, and Lebanon

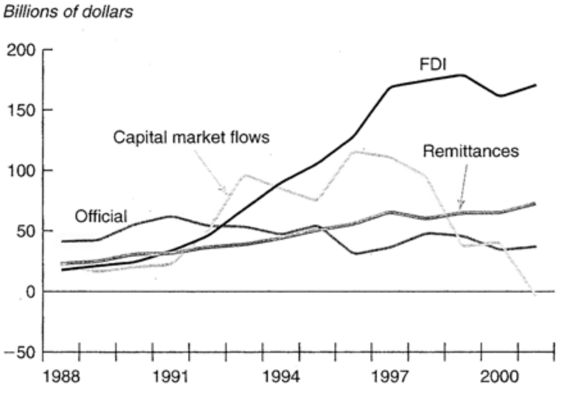


FIGURE 15-6. Workers' Remittances and Other Inflows, 1988–2001. *Source:* World Bank 2003e:158.

(shown in Figure 15-7), with most from Saudi Arabia, the largest source of remittance payments on a per-capita basis. The major source for Mexico, Central America, and the Philippines was the United States, the largest source of remittances in the world in 2001. The estimated foregone income-tax receipts from emigration of ICT and other professionals from India to the United States in the late 1990s was one-third of Indian income-tax receipts. The European Union was the major source of remittances for Turkey and Morocco. Latin America and the Caribbean was the largest recipient of remittances but relative to GDP, South Asia, with 2.5 percent, was the largest.

Macroeconomic cycles can affect return migration. The Asian financial crisis contributed to a return of temporary labor from Malaysia, South Korea, Thailand, and Hong Kong to their countries of origin. By contrast, falling opportunities for ICT and the professions in the United States and increased opportunities in these fields in India during the first few years of the 21st century contributed to the return migration of skilled talent and entrepreneurs to India, along with FDI inflows (World Bank 2004f:151–161).

Remittances are more stable and less concentrated in LDCs than other sources for financing an external deficit.[9] Because of restrictions on legal immigration, illegal migration and trafficking in humans, and spending to combat both, have risen noticeably in the late 1990s and early years of the 21st century (World Bank 2004f:151–161).

From 1993, when President Fidel Castro legalized the U.S. dollar in Cuba, to 2002, Cuban-American remittances to island residents exceeded several billion dollars, including more than one billion in 2002 alone. Dollar shops for purchases by tourists, together with remittances, netted almost half of Cuba's foreign exchange of $5 billion in 2002. The London *Economist* (August 2, 2003, p. 37) contends that "the effect has been to turn Cubans into a nation of hustlers," because fruits and vegetables are expensive and dollars are virtually essential for cooking oil (a week's pay for a liter), soap (a day's wages per bar), and detergent.

[9] The General Agreement on Trade in Services has adopted Mode 4 to facilitate "temporary movement of individual service suppliers," making planning more predictable (World Bank 2003a:158–163; World Bank 2004b:168–170).

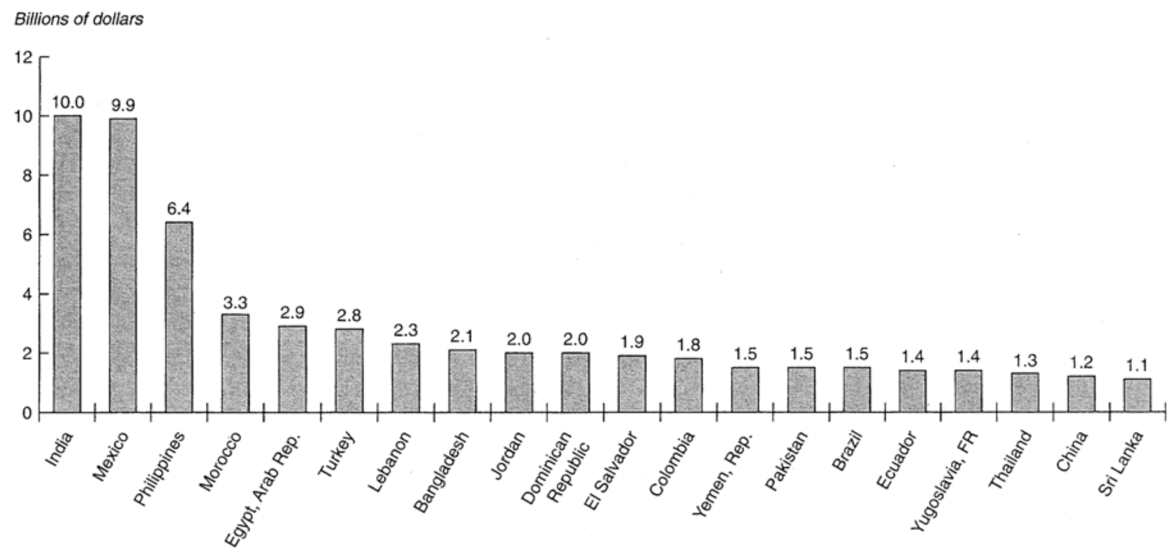


FIGURE 15-7. Top 20 Developing-Country Recipients of Workers' Remittances, 2001. *Source:* World Bank 2003e:159.

BOX 15-1. THE *HAWALA* SYSTEM

Stateless and nomadic peoples and those living amid war often design alternative systems to those of banks, credit cards, and travelers' checks. According to Peter Little (2003:142)

> In the Somali borderlands, confidence in the local currency facilitates credit and financial transfers, critical components of commerce because of the risks associated with [traders and herders] carrying large amounts of cash. While much of the livestock trade is calculated in SoSh [the Somalia shilling issued in the 1980s] and final payments are made in SoSh or US dollars, the actual handling of cash in large transactions is minimal. Somali border traders . . . can take their earnings to Nairobi, convert them to dollars, and then "wire" them back to money houses in Somalia, where they can be picked up by associates.

This informal *hawala* system avoids the carrying of large amounts of cash across the border. Informal money houses and middlemen, important in long-distance trade involving livestock, mediate credit in a system that requires considerable trust to operate. The Somali shilling, because of its relative stability, facilitated border trade in livestock and other commodities in a weak state that lacked a central bank (Little 2003:142, 145).

Unfortunately for many Somalis, the largest *hawala* bank, al Barakat, was abruptly closed in November 2001 by a U.S.-led initiative that claimed the bank laundered funds for al-Qaida. Thus, what had evolved as a viable institution for transfers following the collapse of Somalia's finance sector was closed to thousands of Somali families dependent on it in the region and around the world (Little 2003: 143).

The weaknesses of banks and other financial institutions impose substantial transactions costs on migrants who send remittances. The average cost of these transfers (exchange-rate commissions and transfers fees) are 12.8 percent in Cuba, 12.6 percent in Colombia, 10.7 percent in Haiti, and 9.1 percent in Mexico, an astronomical sum compared with transfers among DCs. Many U.S. banks recognize *matriculas consulares*, identity cards for legal or illegal residents with Mexican citizenship, as identification for opening bank accounts (World Bank 2003f:165–166).

The exorbitant transfer cost has increased the use of informal channels, such as the *hawala* ("transfer" in Arabic) (Little 2003:143; World Bank 2003f:173). However, in an era of concern about money laundering by terrorists, the *hawala* option has been increasingly cut off, as Box 15-1 indicates.

PRIVATE INVESTMENT AND MULTINATIONAL CORPORATIONS

As real aid to less-developed countries fell during the 1990s, foreign direct investment (FDI), at 74 percent in 2002, comprised an increasing portion of total resource flows to developing countries (Figure 15-1). Private FDI, a source for financing the balance

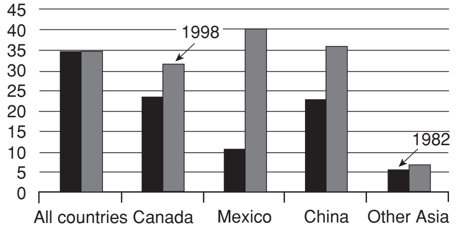


FIGURE 15-8. Exports of U.S. Affiliates as a Share of Total Exports (in percent). *Note:* Exports from U.S. affiliates in all countries show no rise in the share of sales because of declines in the export shares in primary production. *Source:* World Bank 2000f:58.

on goods and services deficit, consists of **portfolio investment**, in which the investor has no control over operations, and **direct investment**, which entails managing the operations. In the 19th century, Western European investment in the young growing debtor nations, the United States and Canada, was primarily portfolio investment, such as securities. Today, DC investment in LDCs is mostly private direct investment. **Multinational corporations** (MNCs), business firms with a parent company in one country and subsidiary operations in other countries, are responsible for much of this direct investment.

MNC intrafirm trade is a large proportion of international trade. In 1999, 36 percent of U.S. exports were intrafirm exports, whereas in Japan 31 percent of exports were intrafirm, for both countries an increase over 1990's percentage. Intrafirm trade in services became steadily more important during the last quarter of the 20th century.

In addition, LDCs boosted exports by participating in global production networks dominated by DCs such as the United States and Japan. Exports of U.S. affiliates as a percentage of China's exports were 36 percent in 1998. Figure 15-8 shows U.S. affiliate percentages in other Asian countries, Mexico, Canada, and all countries with U.S. affiliates in 1982 and 1998.

At the turn of the 21st century, the global economy was dominated by MNCs from the United States, European Union, and Japan. DCs comprised 71 percent of foreign direct investment (FDI) inflows, 75 percent of FDI outflows, and a large share of the international trade. But emerging economies such as Taiwan, South Korea, Singapore, China, India, and Brazil are beginning to be a factor in foreign investment (D'Costa 2003:3l; Table 15-3). Moreover, as Figure 15-9 shows, in 2000, 56 percent of the FDI in LDCs is from high-income OECD countries compared to 35 percent from other LDCs, and 9 percent from high-income non-OECD countries.

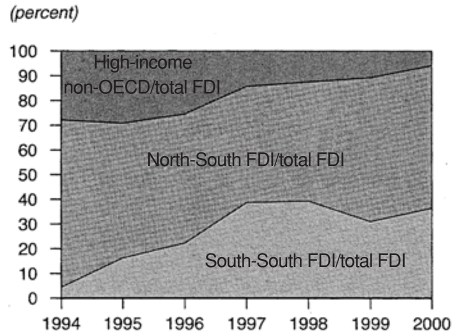


FIGURE 15-9. Share of South–South FDI in Total FDI. *Source:* World Bank 2003f:124.

TABLE 15-3. Outward FDI Flows,[a] by Geographical Destination, 1999–2001 (billions of dollars and percentage distribution)

	Value in billion dollars		Percentage distribution	
Region/economy	Average 1999–2000	2001	Average 1999–2000	2001
Developed countries	**924.2**	**470.1**	**83.7**	**74.6**
Western Europe	640.9	259.7	58.0	41.2
European Union	589.4	236.6	53.4	37.5
Other Western Europe	50.9	24.1	4.6	3.8
Unspecified Western Europe	0.6	−1.0	0.1	−0.2
North America	256.2	197.3	23.2	31.3
Other developed countries	25.0	9.1	2.3	1.4
Unspecified developed countries	2.2	3.9	0.2	0.6
Developing economies	**129.2**	**115.2**	**11.7**	**18.3**
Africa	6.8	8.5	0.6	1.3
North Africa	0.5	1.8	0.0	0.3
Other Africa	5.0	6.3	0.5	1.0
Unspecified Africa	1.3	0.4	0.1	0.1
Latin America and the Caribbean	84.7	69.1	7.7	11.0
South America	39.5	20.3	3.6	3.2
Other Latin America and Caribbean	36.4	38.0	3.3	6.0
Unspecified Latin America and Caribbean	8.8	10.9	0.8	1.7
Asia	33.9	36.5	3.1	5.8
West Asia	0.8	2.8	0.1	0.4
Central Asia	1.0	0.1	0.1	0.0
South, East, and South-East Asia	31.0	32.8	2.8	5.2
Unspecified Asia	1.1	0.8	0.1	0.1
The Pacific	1.5	0.8	0.1	0.1
Unspecified developing countries	2.4	0.3	0.2	0.1
Central and Eastern Europe	**18.0**	**18.6**	**1.6**	**3.0**
Unspecified	**32.7**	**26.3**	**3.0**	**4.2**
Total world	**1,104.1**	**630.3**	**100.0**	**100.0**

May not add up to totals because of rounding.

[a] Totals for developed countries are based on data for the following countries: Australia, Austria, Belgium and Luxembourg, Canada, Denmark, Finland, France, Germany, Iceland, Ireland, Japan, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, and United States.

Source: UNCTAD 2003:9.

The United States accounted for 52 percent of the world's stock of outward foreign direct investment (FDI) capital in 1971, 40 percent in 1983, 25 percent in 1993, and 16 percent in 2001. DCs comprised 97 percent of world FDI capital stock in 1983 and 93 percent in 1993, but fell to 75 percent in 2001. The United States was the leading source of outward FDI from 1971 to 2001 although the European Union, with 38 percent, had more than twice the US's 2001 figure. The leading countries of the South with FDI stock included DCs Singapore, Taiwan, South Korea, and Hong Kong, in addition to South Africa, India, Brazil, Argentina, Colombia, Peru, the Philippines, and the OPEC countries (Bergsten, Horst, and Moran 1981:267–95; Streeten 1981:308–15; Dunning 1988:28–29; UNCTAD 1994; UNCTAD 2003:6–9).

The United States had both the largest inward (Table 15-4) and outward flows of foreign direct investment in 2001.[10] When Hong Kong is included, China ranked second in 2001 in inward flows (or first in LDC inflows). Although some FDI flowing to China is recycled domestic investment (explained in Chapter 19), even if this were subtracted, China's FDI inflows would rank first among LDCs. The world's potentially largest market and low-cost labor-intensive production in China, which has become the world's major industrial workshop, attracted many MNCs. Most of the world's business community believed that no one could afford to ignore the enormous investment opportunities in China. For many an MNC, investment in China represented an effort to get its "foot in the door." But China, a low-cost source, is a hard bargainer, frequently demanding total access to foreign technology in exchange for access to its market (Kranhold 2004:A1). Still, China's FDI growth for the first two decades of the 21st century will depend largely on its political stability, the consistency of its economic policies, its macroeconomic management, and its integration into the world economy (UNCTAD 1994b:14–68).

Mexico and Brazil were other leading FDI hosts in developing countries. If we use UNCTAD definitions of LDCs, which include Singapore, Republic of Korea, and Taiwan, and if Hong Kong is combined with China, the top 10 FDI recipients among developing economies received 73 percent of inward FDI in 2001. UNCTAD (2002b:215) states that private capital flows have been concentrated in a few countries. Africa, where the risk premium is high, received only 19 percent. Most of the leading African recipients – Angola, Nigeria, Algeria, Chad, Tunisia, South Africa, Sudan, Egypt, Morocco, and Mozambique – received large amounts of FDI in minerals or petroleum (UNCTAD 2003:7–13, 34).

The World Bank (1997a:2) states that "participation in the global production networks established by multinational enterprises provides developing countries with new means to enhance their economic performance by accessing global know-how and expanding their integration into world markets." Indeed, net private capital flows to LDCs were $168 billion or 2.8 percent of their GNI in 2001, a fall from

[10] The drop in inflows to the United States reflected large repayments of loans by foreign affiliates in the United States to their parent companies and reductions in financing mergers and acquisitions in the United States. Much of the inflow to Luxembourg, separated from Belgium for the first time in 2002, was driven by tax advantages rather than productivity (UNCTAD 2003:6–8, 31).

TABLE 15-4. FDI Inflows to Major Economies, 2001 and 2002 (billions of dollars)

Host region/economy	2001	2002
World	**823.8**	**651.2**
Developed countries	**589.4**	**460.3**
European Union	**389.4**	**374.4**
France	55.2	51.5
Germany	33.9	38.0
Luxembourg	–	125.6
United Kingdom	62.0	24.9
Other EU	238.3	134.4
United States	**144.0**	**30.0**
Other	**56.0**	**55.9**
Developing economies	**209.4**	**162.1**
Africa	**18.8**	**11.0**
Algeria	1.2	1.1
Angola	2.1	1.3
Nigeria	1.1	1.3
South Africa	6.8	0.8
Other Africa	7.6	6.5
Latin America and the Caribbean	**83.7**	**56.0**
Argentina	3.2	1.0
Brazil	22.5	16.6
Mexico	25.3	13.6
Other Latin America	32.7	24.8
Asia and the Pacific	**106.9**	**95.1**
China	46.8	52.7
Hong Kong, China	23.8	13.7
India	3.4	3.4
Korea, Republic of	3.5	2.0
Malaysia	0.6	3.2
Philippines	1.0	1.1
Singapore	10.9	7.7
Taiwan Province of China	4.1	1.4
Thailand	3.8	1.1
Other Asia and Pacific	9.0	8.8
Transitional economies	**25.0**	**28.7**
Central and Eastern Europe	**25.0**	**28.7**
Czech Republic	5.6	9.3
Poland	5.7	4.1
Russian Federation	2.5	2.4
Other C. & E. Europe	11.2	12.9

May not add up to totals because of rounding.
Categories of developed, developing, and transitional economies may vary from those in this book.
Source: UNCTAD 2003:7.

this percentage in 1990. This percentage fell even further for low-income countries, many with low credit ratings during this period, a continuation of a fall that began in the early 1980s (World Bank 2003h:16, 332; FitzGerald 2002:62–84). In addition, private capital flows are highly volatile, especially in countries that have liberalized their financial markets. After the 1997–98 Asian crisis, for example, private capital flows to LDCs fell substantially.

Although subject to substantial fluctuations, about half of private capital flows to LDCs in the 1990s were loans, which contribute to future debt service, and portfolio investments, which are subject to reverse capital flows (World Bank 2002e:354; UNCTAD 2003d:4). FDI does not generate debt servicing or capital outflows, and potentially can finance a savings or balance of payments deficit, bring about a transfer of technology and innovative methods of increasing productivity, fill part of the shortage of high-level skills, provide training for domestic managers and technicians, generate tax revenue from income and corporate profits tax, and complement local entrepreneurship by subcontracting to ancillary industries, component makers, or repair shops, or by creating forward and backward linkages.

Investment inflows as a percentage of gross fixed capital investment in Africa were 9 percent in 2002. However, although annual FDI flows to least developed countries increased by 65 percent from 1989 to 1994, and tripled from 1989 to 2001 (Figure 15-10) the least-developed countries' share of developing-country inflows was only 0.6 per cent in 2001. Most of these flows were to African mineral and petroleum countries (UNCTAD 2002c:49, 74, 77). Moreover, low-income countries (LICs) comprised only 30 percent of the $171 billion FDI flows to developing countries of 2001, and India took a lion's share of LIC's FDI (World Bank 2003e:87; World Bank 2003h: 331–332).[11]

The share of FDI flows in 1998–2000 gross domestic capital formation was 7 percent for LLDCs and 13 percent for all other developing countries. According to UNCTAD (2002c:73–78), 17 of the 25 LLDCs for which indexes were constructed were underperformers, 1986–2001, in attracting FDI flows.

Developing countries, particularly LLDCs, need policies to increase FDI and other external resources. In 1988, the World Bank established the Multilateral Investment Guarantee Agency (MIGA) to help developing countries attract foreign investment. MIGA provides investors with marketing services, legal advise, and guarantees against noncommercial risk, such as expropriation and war (Aguilar 1997:10).

By 2001, 41 least-developed countries had concluded bilateral investment treaties (BITs) with other countries for the protection and promotion of foreign investment, and 33 had entered into double taxation treaties to avoid taxation in both LLDC and the headquarters' country. FDI plays a role not only in finance but also in skills, technology, and knowledge needed to spur economic growth (ibid., pp. 78–79).

[11] Ndikumana (2001) contends that reports of a "surge" in Africa's FDI is an illusion. Africa's share of FDI inflows to LDCs fell from 10.5 percent in 1981–89 to 4.3 percent in 1999. Reasons for this fall were a weak macroeconomic environment, underdeveloped financial system (including weak regulation and supervision), and high country risk from high transactions cost from administrative inefficiency and psychocultural distance.

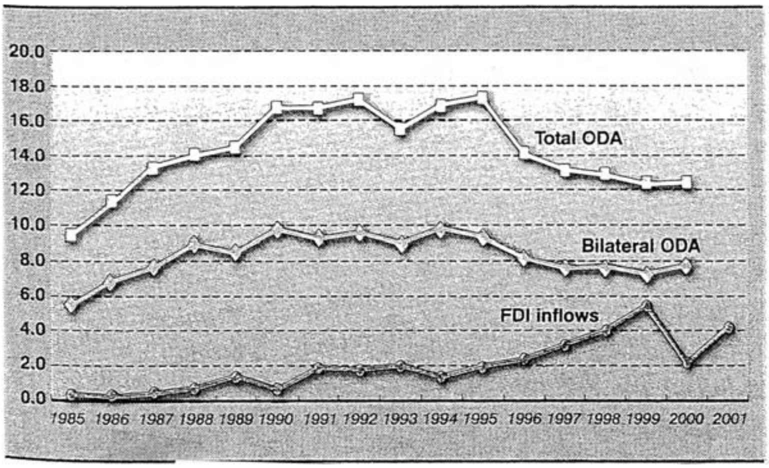


FIGURE 15-10. FDI Inflows and ODA Flows to LLDCs, 1985–2001 (billions of dollars). *Source:* UNCTAD 2002d:77.

Although official development assistance comprised the largest component of external resources for LLDCs, it declined relatively and absolutely, 1995 to 2000 (see Figure 15-10).

Tanzania, an LLDC, provided an enabling framework for FDI in the late 1980s and early 1990s, by making the transition to a market economy, undertaking market reforms (including enacting a mining act more favorable to FDI), and beginning a privatization program for inefficient state enterprises. During 1995–2000, Tanzania received $1 billion FDI, much in gold mining, compared to only $90 million during 1989–94. Mining served as an engine of growth, helping to increase gold exports and to modernize the banking industry. Foreign investors have helped restructure privatized enterprises, boosting technology, skills, and competitiveness. In addition, from the early to late 1990s, FDI's contribution to the balance of payments changed from negative to positive (UNCTAD 2002c:75).

Similar to Tanzania, there is a possibility of attracting FDI to LLDCs and low-income countries, not just to those with potentially large markets, such as China and India; with nonresident nationals, as China or India; with resident nationals managing cross-border investments, as in Malaysia, Mozambique, South Africa, or East Africa (FitzGerald 2002:71); or with extractive industries, such as Nigeria or Angola. Vietnam introduced FDI legislation in 1987–88, which, together with the lifting of U.S. economic sanctions in 1994, increased FDI inflows from $8 million in 1988 to $150 million in 1995. Bangladesh's FDI reforms in 1991, which facilitated the establishment of foreign-owned subsidiaries, increased inflows from just a trickle in the 1980s to $125 million in 1995. Ghana, as a result of Ashanti goldfield privatization, increased annual FDI inflows 17-fold from a $11.7 million average during 1986–92 to an average of $201 million in 1993–95 (ODI 1997:2). Even Cambodia, which created a legal framework and the necessary institutions to promote FDI after 1993, increased its FDI capital inflows from virtually nothing in 1990 to $656 million in 1996 (UNCTAD 1997a:54, 316).

Since the mid-1980s, with falling trade, transport, and communication barriers, multinational corporations (MNCs) have increased their international outsourcing, importing components from low-cost production locations abroad and exporting to overseas assembly or processing locations. As an example, following the rise of the yen after 1985, Japan's major electronics manufacturers outsourced assembly and other final stages of output to Asian countries (World Bank 1997i:42–43). Asian NICs and ASEAN countries were a part of Japanese companies' borderless economic system of trade and investment. These companies used a flying-geese pattern, with Japan at the lead, and Asian emerging nations forming the "V" behind. Chapter 17 discusses both Japanese and U.S. global production networks.

Developing countries need to undertake major institutional changes (see Chapter 4), not only to facilitate foreign and domestic investment but to provide the scaffolding for other economic policies that increase a country's attractiveness for foreign private domestic capital flows. With changes in institutions, a number of low-income countries could begin participating in the new international division of labor created by outsourcing by high-income OECD countries. But this flying-geese pattern may also apply to non-OECD leader countries. ECA (1989) estimates that, during the 1980s, Southern African Development Community (SADC) countries other than South Africa lost one-fourth of their GDP from South Africa's destabilization. However, since 1994, a democratic and prosperous South Africa should provide the economic leadership to spur SADC's economic development. South Africa, with its trade and FDI (including those by MNCs in the country), could serve as a "growth pole" for other SADC members of the region – Angola, Botswana, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Swaziland, Tanzania, Zambia, and Zimbabwe (UNCTAD 1997b:64–66).

Of course, participating in this global production sharing has its benefits and costs, as in the cases of Malaysia and Thailand, discussed in Chapter 17, and also discussed later when we look at the benefits and costs of MNCs.

THE BENEFITS AND COSTS OF MULTINATIONAL CORPORATIONS

Some LDC governments are ambivalent, or even hostile, toward MNCs. To be sure, these corporations bring in capital, new technology, management skills, new products, and increased efficiency and income; however, MNCs usually seek to maximize the profits of the parent company, rather than the subsidiaries'. Surely the main reason for LDCs soliciting MNC investment and other foreign direct investment is their contribution to technology transfer.[12] However, it may be in the interest of the parent company to limit the transfer of technology and industrial secrets to local personnel of the subsidiary, to restrict its exports, to force it to purchase intermediate parts and capital goods from the parent, and to set intrafirm (but international) transfer prices to shift taxes from the host country. Still, during the last decade or so, some MNCs have concentrated increasing research and development in affiliates, even in LDCs.

[12] Javorcik (2004:605–627) finds positive productivity spillovers from FDI from foreign affiliates to their local suppliers (that is, backward linkages) but only with partially owned foreign projects.

For example, in the 1990s, when U.S., Japanese, and E.U. MNC affiliates became more integrated into parent companies' highly nuanced value added ladder, MNCs located more research and development (R&D) in their affiliates.

Most foreign investment is from large corporations. The largest MNCs, with hundreds of branches and affiliates throughout the world, have an output comparable to the LDC with which they bargain. ExxonMobile, Shell, BP, General Motors, Ford, Toyota, Hitachi, Matsushita, Siemens, and General Electric each have an annual value added exceeding that of most third-world countries (Table 15-5). Thus, for instance, General Motors would not negotiate investment in Bangladesh or ExxonMobile in Nigeria as an inferior party but as roughly an equal in economic power and size.[13] Furthermore, MNCs are increasingly footloose, shifting investments from country to another as tax rates, wages, and other costs change (Barnet and Cavanagh 1994).

MNCs are important actors on the international scene. UNCTAD estimates that the value added of the world's top 100 firms accounted for 4.3 percent of world GDP in 2000 (UNCTAD 2002:91) and that MNC intrafirm trade was one-third of international trade (UNCTAD 1994b). Four-fifths of Africa's 1983 commodity trade was handled by MNCs. Thirty-eight percent of total U.S. imports in 1977 consisted of intrafirm transactions by MNCs based in the United States. Over one-third of these transactions were from LDCs. Moreover, MNCs play an important role in LDC manufacturing exports, responsible for 20 percent of Latin America's manufactured exports. Indeed, U.S. affiliates alone accounted for 7.2 percent of 1977 LDC manufacturing exports, 35.7 percent of Mexico's, and 15.2 percent in Brazil, but only 1.5 percent in South Korea (UNCTAD Seminar Program 1978; Streeten 1981:308–315; Economic Commission for Africa 1983a; UNCTAD 1985:3–8; Blomstrom, Kraus, and Lipsey 1988).

The markets MNCs operate in are *often* international **oligopolies** with competition among few sellers whose pricing decisions are interdependent. International economists contend that large corporations invest overseas because of international imperfections in the market for goods, resources, or technology. The MNCs benefit from monopoly advantages, such as patents, technical knowledge, superior managerial and marketing skills, better access to capital markets, economies of large-scale production, and economies of **vertical integration** (that is, cost savings from decision coordination between a producing unit and its upstream suppliers and its downstream buyers). An example of vertical integration is from crude petroleum marketing backward to its drilling and forward to consumer markets for its refined products. UNCTAD (1993:5) argues, however, that in the 1990s, with substantial improvements in communication and information technologies, MNCs have moved to even more complex integration, coordinating "a growing number of activities in a wider array of locations." Multinationals are increasingly establishing stand-alone affiliates, linked by ownership to the parent but otherwise operating largely as independent

[13] Table 15-5 subtracts purchases of inputs from other firms from, for example, General Motor's production to get value added, to avoid double-counting the production of inputs supplied by one firm to another. This makes the figure for GM comparable to Bangladesh's GDP. The table's notes indicate the adjustment made to sales to obtain value added, an adjustment that, at best, indicates a rough comparability between MNCs and nation-states.

TABLE 15-5. Ranking of Developing (Low- and Middle-Income) Countries and Multinational Corporations According to Value Added in 2000[a] ($ billions)

1. China	1,080
2. Brazil	595
3. Mexico	575
4. India	457
5. Argentina	285
6. Russian Federation	251
7. Turkey	200
8. Saudi Arabia	173
9. Poland	158
10. Indonesia	153
11. South Africa	126
12. Thailand	122
13. Venezuela	120
14. Iran, Islamic Rep. of	105
15. Egypt	99
16. Malaysia	90
17. Colombia	81
18. Philippines	75
19. Chile	71
20. Exxon Mobile[b]	63
21. Pakistan	62
22. General Motors[b]	56
23. Peru	53
24. Algeria	53
25. Bangladesh	47
26. Hungary	46
27. Ford Motor	44
28. Daimler Chrysler	42
29. Nigeria	41
30. General Electric[b]	39
31. Toyota Motor[b]	38
32. Kuwait	38
33. Romania	37
34. Royal Dutch/Shell	36
35. Morocco	33
36. Ukraine	32
37. Siemens	32
38. Viet Nam	31
39. Libyan Arab Jamahiriya	31
40. BP	30
41. Wal-Mart Stores[c]	30
42. IBM[b]	27
43. Volkswagen	24
44. Cuba	24

(continued)

TABLE 15-5 *(continued)*

45. Hitachi[b]	24
46. Total FinaElf	23
47. Verizon Communications[d]	23
48. Matsushita Electric Industrial[b]	22
49. Mitsui & Company[c]	20
50. E. On	20
51. Oman	20
52. Sony[b]	20
53. Mitsubishi[c]	20
54. Uruguay	20
55. Dominican Republic	20
56. Tunisia	19
57. Philip Morris[b]	19
58. Slovakia	19
59. Croatia	19
60. Guatemala	19
61. SBC Communications[d]	19
62. Itochu[c]	18
63. Kazakhstan	18
64. Honda Motor[b]	18
65. Eni	18
66. Nissan Motor[b]	18
67. Toshiba[b]	17
68. Syrian Arab Republic	17
69. GlaxoSmithKline	17
70. BT	17

Note: Thirty high-income countries (see cover) were omitted from the table.

[a] GDP for countries and value added for MNCs. Value-added is defined as the sum of salaries, pretax profits, and depreciation and amortization.

[b] Value-added is estimated by applying the 30 percent share of value-added in the total sales, 2000, of manufacturers for which the data were available.

[c] Value-added is estimated by applying the 16 percent share of value-added in the total sales, 2000, of trading companies for which the data on value-added were available.

[d] Value-added is estimated by applying the 37 percent share of value-added in the total sales, 2000, of other tertiary companies for which the data on value-added were available.

Source: UNCTAD 2002c:90–91.

concerns within the host economy. These affiliates arrange their own subcontractors, suppliers, and marketing, with some even located in third countries.

From 1988 to 1992, LDCs, under pressure by creditors to privatize public enterprises, sold 17 percent of their medium-sized and large state-owned enterprises to foreign direct investors. In Eastern Europe and the former Soviet Union, 1988 to

1992, FDI from privatizing state-owned enterprises comprised 67 percent of total FDI inflows to that region (UNCTAD 1994b:26).

Additionally, in some industries, control over global marketing and financing still gives MNCs much power in determining the supply and price of LDC primary exports. For example, three conglomerates account for 70–75 percent of the global banana market; six corporations, 70 percent of cocoa trade; and six MNCs, 85–90 percent of leaf tobacco trade (Economic Commission for Africa 1983a).

Yet, ironically in some instances, MNCs may increase competition because their intrafirm transactions break down barriers to free trade and factor movement between countries. By contrast, once MNCs are established in an economy, they may exploit their monopolistic advantages and enhance concentration. Thus, MNCs, which accounted for 62 percent of manufacturing's capital stock in Nigeria in 1965, contributed to high rates of industrial concentration. Yet a subsidiary's production that dominates a LDC industry may be only a fraction of the parent company's output and peripheral to the MNC's decision-making process (Kindleberger 1974:267–285; Nafziger 1977:55–60).

You may have already sensed that leaders in LDCs do not agree on whether MNCs are beneficial or not. Some emphasize that MNCs provide scarce capital and advanced technology essential for rapid growth. Others believe such dependence for capital and technology hampers development. In the next two sections, we summarize the benefits and costs of MNCs in less-developed countries.[14]

The benefits of MNCs. MNCs can help the developing country to

1. Finance a savings gap or balance of payments deficit.
2. Acquire a specialized good or service essential for domestic production (for example, an underwater engineering system for offshore oil drilling or computer capability for analyzing the strength and weight of a dam's components).
3. Obtain foreign technology and innovative methods of increasing productivity.
4. Generate appropriate technology by adapting existing processes or by means of a new invention.
5. Fill part of the shortage in management and entrepreneurship.
6. Complement local entrepreneurship by subcontracting to ancillary industries, component makers, or repair shops; or by creating forward and backward linkages.
7. Provide contacts with overseas banks, markets, and supply sources that would otherwise remain unknown.
8. Train domestic managers and technicians.
9. Employ domestic labor, especially in skilled jobs.
10. Generate tax revenue from income and corporate profits taxes.
11. Enhance efficiency by removing impediments to free trade and factor movement.
12. Increase national income through increased specialization and economies of scale.

[14] Sources for these two sections are Müller (1979:151–178); Streeten (1973:1–14); Lall (1974:41–48); and Buffie (1993:639–667).

The costs of MNCs. Some economists and third-world policy makers have questioned whether MNC benefits exceed costs. These critics charge that MNCs have a negative effect on the developing country because they

1. Increase the LDC's technological dependence on foreign sources, resulting in less technological innovation by local workers.
2. Limit the transfer of patents, industrial secrets, and other technical knowledge to the subsidiary, which may be viewed as a potential rival (Adikibi 1988:511–526). For example, Coca-Cola left India in 1977 rather than share its secret formula with local interests (although in 1988–89 it reentered India, but without sharing its formula, to forestall dominance by Pepsi Cola's minority-owned joint venture).
3. Enhance industrial and technological concentration.
4. Hamper local entrepreneurship and investment in infant industries.
5. Introduce inappropriate products, technology, and consumption patterns (see Nafziger, 2006b:Box 15-2, "Infant Feeding and the Multinationals").
6. Increase unemployment rates from unsuitable technology (see Chapter 9).
7. Exacerbate income inequalities by generating jobs and patronage and producing goods that primarily benefit the richest 20 percent of the population.
8. Restrict subsidiary exports when they undercut the market of the parent company.
9. Understate tax liabilities by overstating investment costs, overpricing inputs transferred from another subsidiary, and underpricing outputs sold within the MNC to another country.
10. Distort intrafirm transfer prices to transfer funds extralegally or to circumvent foreign exchange controls.
11. Require the subsidiary to purchase inputs from the parent company rather than from domestic firms.
12. Repatriate large amounts of funds – profits, royalties, and managerial and service fees – that contribute to balance of payments deficits in the years after the initial capital inflow.
13. Influence government policy in an unfavorable direction (for example, excessive protection, tax concessions, subsidies, infrastructure, and provision of factory sites).
14. Increase foreign intervention in the domestic political process.
15. Divert local, skilled personnel from domestic entrepreneurship or government service.
16. Raise a large percentage of their capital from local funds having a high opportunity cost.

On the last point, Ronald Müller's (1979:151–178) evidence from Latin America indicated that MNCs contribute only 17 percent, and local sources 83 percent, of the financial capital. However, Müller includes as local capital the subsidiary's reinvested earnings and depreciation allowances. If this source is excluded, local financing accounts for 59 percent of total capital. Still, if the figure is representative

of developing countries as a whole, MNCs contribute less than generally believed. Moreover, even if local individuals and financial institutions contribute only 20 to 30 percent, this amount represents substantial funds that invested elsewhere might better meet the country's social priorities.

Southern Africa illustrates MNC cost. Between 1960 and 1985, almost half the Western MNC investment in Africa was in the Republic of South Africa, supporting not only apartheid there but also harming the neighboring countries' development. The MNCs and the Pretoria government viewed South Africa as the core for their expanding activities throughout other parts of southern Africa, which provided labor, a market, and raw materials. The MNCs with subsidiaries also in South Africa's neighboring countries dominated their banking systems, invested much of these countries' financial capital in South Africa, shipped raw materials for processing from them to South Africa, and neglected their manufacturing and (sometimes) mining industries. These neighbors bought capital goods, some consumer goods, and even foodstuffs from South African MNCs. Until the 1980s, the international copper companies in Zambia, Zaire, Botswana, and Namibia built most fabricating factories in South Africa or the West (Seidman and Makgetla 1980).

The MNCs and LDC economic interests. The MNC benefits and costs vary among classes and interest groups within a LDC population. Sometimes political elites welcome a MNC because it benefits them through rakeoffs on its contract, sales of inputs and services, jobs for clients, and positions on the boards of directors (even though the firm harms the interests of most of the population). However, as political power is dispersed, elites may have to represent a more general public interest.

Since the early 1970s, there has been a shift in bargaining power away from the MNCs to third-world governments, which have increased their technical and economic expertise and added alternative sources of capital and technology. An increasing share of MNC investment is in joint ventures with LDC government or business. And LDCs have appropriated more of the monopoly rents from public utilities and mineral production. In the 1970s, the most visible change was the shift in the ownership of OPEC oil concessions from the international oil companies to OPEC member governments (see Chapter 13). Moreover, as a result of increasing LDC restrictions, some of the MNC role has shifted from equity investment, capital ownership, and managerial control of overseas facilities to the sale of technology, management services, and marketing. As LDCs become more selective in admitting MNCs, and more effective at bargaining, they increase the benefits and reduce the costs of MNCs (Streeten 1981:308–315).

Some economists, however, would argue that, since the mid-1980s, the bargaining power has shifted back somewhat to MNCs. Under IMF stabilization loans and IMF-World Bank adjustment loans, LDCs have faced pressures to privatize and open their economies to foreign capital investment, policies that provide more opportunities for DC-based multinational companies.

Alternatives to MNC technology transfer. The LDCs can receive technology from MNCs without their sole ownership. Joint MNC–local country ventures can help

LDCs learn by doing. Yet frequent contractual limits on transferring patents, industrial secrets, and other technical knowledge to the subsidiary, which may be viewed as a potential rival, may hamper learning benefits. **Turnkey projects**, in which foreigners for a price provide inputs and technology, build plant and equipment, and assemble the production line so that locals can initiate production at the "turn of a key," are usually more expensive and rarely profitable in LDCs (which usually lack an adequate industrial infrastructure). Other arrangements include management contracts, buying or licensing technology, or (more cheaply) buying machinery in which knowledge is embodied. The late-19th-century Japanese government, which received no foreign aid, introduced innovations by buying foreign technology or hiring foreign experts directly. More recently, in the 1980s, the Chinese government-owned Jialing Machinery Factory in Chongqing improved the engineering of its motorcycles substantially by buying technical advice, machines, and parts, and licensing technology from Japan's Honda Motor Company. Additionally, nonmarket sources of foreign knowledge include imitation, trade journals, and technical and scientific exchange, as well as feedback from foreign buyers or users of exports – all virtually costless (Nafziger 1986b:1–26; Nordquist 1987:66–71; see also Fransman 1986:11–14, who indicates major modes of transferring knowledge through the market).

Sanjaya Lall's (1985:76) conclusion is sensible:

> The correct strategy then must be a judicious and careful blend of permitting TNC [MNC] entry, licensing and stimulation of local technological effort. The stress must always be – as it was in Japan – to keep up with the best practice technology and to achieving production efficiency which enables local producers (regardless of their origin) to compete in world markets. This objective will necessitate TNC presence in some cases, but not in others.

LOANS AT BANKERS' STANDARDS

In the 1960s, the LDC balance on goods and services deficit was financed primarily by flows from official or semiofficial sources in the form of grants, concessional loans, and market loans. Private finance during the 1960s consisted mainly of suppliers' credits and direct foreign investment. Commercial bank lending increased in the decade after 1967. As pointed out earlier, private loans fell during most of the 1980s, increased during the early 1990s, but fell again during the late 1990s through 2003.

Nonconcessional loans from abroad finance a deficit in the balance on goods and services account. For LDCs, the ratio of official aid to commercial loans declined for a decade and a half after 1970: from 1.40 in 1970 to 0.66 in 1973 to 0.55 in 1975 to 0.36 in 1978 to 0.23 in 1984. Subsequently, the ratio of official aid to commercial loans rose from 0.23 in 1984 to 0.33 in 1987 to 0.47 in 1990 and 0.43 in 1994 to 0.95 in 2002. The increasing trend after the mid-1980s mostly reflected the fall in private lending rather than substantial growth in concessional assistance. By the late 1980s and early 1990s, low-income countries, with more than twice the population of middle-income countries, received twice the official assistance that middle-income countries did, in contrast to the 1970s, late 1990s, and early years of the 21st century,

when aid was relatively evenly divided among the country categories. However, all but a small fraction of commercial loans were to middle-income countries with high credit ratings (World Bank 1980i; OECD 1981; OECD 1982; World Bank 1981i:49–63; Overseas Development Council 1982a:215–37; Overseas Development Council 1982b:225–46; IMF 1988d:96–109; IMF 1995d:161–67; OECD 2002b).

Two sources of lending fell in the late 1990s and early years of the 21st century: (1) private lending as commercial bankers became unwilling to finance in the face of debt rescheduling and default (see Chapter 16), recent nonperforming loans, and more selective lending by individual banks, and (2) official (or officially supported) export credit finance (a part of short-term borrowing), and interest rates for bank finance fell.

However, one source of local LDC funding is expanding – local lending by multinational banks with headquarters in DCs. Affiliate banks of the major DCs in the Group of 10[15] are increasingly lending in local currency, a trend that could reduce LDC debt in foreign currency. The local currency claims of G-10 bank affiliates in LDCs shot up from $30 billion in 1983 to $130 billion in 1996 to $490 billion in 2002, increasing the proportion of these affiliates' claims on LDCs in local currency from 7 percent in 1983 to 20 percent in 1996 to 68 percent in 2002 (World Bank 2003e:51). This decreases currency mismatches in LDCs, a phenomenon in which banks hold assets in local currency and incur liabilities in foreign currency, making the banks vulnerable to losses from domestic currency depreciation.

Bilateral flows. OECD official development assistance is only a part of the total net flow of resources to LDCs. As indicated earlier, 0.22 percent of the 2001 GNP of OECD countries was foreign aid. However, additional net flows included private capital and bank loans – 0.96 percent of GNP, nonconcessional official flows – 0.04 percent of GNP, and private voluntary agencies – 0.03 percent of GNP. Thus, the total net flow was 1.25 percent of GNP (OECD 1995:C3–C4; UNCTAD 2003:4).

The Eurocurrency market. Eurodollars are dollars deposited in banks outside the United States, often by U.S. banks. More generally, **Eurocurrency** deposits are in currencies other than that of the country where the bank (called a Eurobank) is located. The Eurobank system began in the early 1950s when the Soviet Union, using the U.S. dollar for international trade and fearing the U.S. government might block its deposits in U.S. banks, transferred its dollars to English banks. These (and subsequently other European) banks could lend these dollars to MNCs, banks, governments, and other borrowers. Banks increased their profits by avoiding national exchange controls, reserve requirements, and bank interest ceilings, and depositors were attracted by receiving higher interest rates. In the mid-1990s, dollars comprised two-thirds of the more than $8 trillion deposits in this unregulated financial market, which is located in Europe (London, Zurich, Paris, Amsterdam, and Luxembourg), Hong Kong,

[15] The G-10, like the Big 10 conference, consists of *11*: Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, Switzerland, the United Kingdom, and the United States.

Singapore, Tokyo, Kuwait, Nassau, Panama, Grand Cayman, Bahrain, and (in 1981 after U.S. banks could accept Eurodeposits) New York City. Eurobanks have played a role in lending to LDCs, including recycling petrodollars to oil-importing LDCs in the mid-1970s. Most deposits are by private nonbanks or by central banks and other official monetary institutions. Although the absence of reserve requirements and control by national monetary authorities provides substantial potential for the multiple expansion of bank deposits (and world inflation), in practice most loan funds are deposited outside Eurobanks, thus leaking out of the system (Ethier 1988:498–509; Fusfeld 1988:799–801; Kenen 1989:453–454, 468–470; Krugman and Obstfeld 1994:642–651; Krugman and Obstfeld 2000:650–659).

Funds from multilateral agencies. In 1944, 44 nations established the **World Bank**, envisioned primarily as a source for loans for post–World War II reconstruction; and the **IMF**, an agency charged with providing short-term credit for international balance of payments deficits (see Chapter 5). Neither institution was set up to solve the financial problems of developing countries; nevertheless, today virtually all financial disbursements from the World Bank are to LDCs, and the IMF is the lender of last resort for LDCs with international payments crises.

The World Bank is a well-established borrower in international capital markets, issuing bonds denominated in U.S. dollars but guaranteeing a minimal Swiss franc value when the dollar depreciates. In the early years of the 21st century, the Bank, which is the largest source of long-term developmental finance for LDCs, provided about 10 percent of the total resource flows to LDCs. It lent more than $17 billion to LDC governments annually, including funds for investments such as water improvement and rural infrastructure in India, telecommunications and water supply in Afghanistan, mass transit in Brazil, a college of fisheries in the Philippines, irrigation and flood control in Indonesia, construction of hospitals, schools, roads, and sewage pipes in Argentina, and a Chad–Cameroon oil pipeline (although in 2004 environmental groups and other nongovernmental organizations challenged support by major international banks, LDC governments, and LDC mining companies of the World Bank continuing to finance LDC oil and coal projects) (World Bank 2004d; *World Bank Development News*, various issues). Furthermore, the World Bank has used its technical and planning expertise to upgrade projects to meet banking standards, has lent for development plans and economic reform, and has led in organizing consortium packages of lenders and grant givers. A World Bank affiliate, the International Finance Corporation, has invested $4 billion annually in agencies to stimulate private enterprise, such as the Industrial Credit and Investment Corporation of India, mentioned in Chapter 14. These amounts do not include soft loans (or concessional aid) of more than $6 billion annually made by another World Bank affiliate, the **International Development Association.**

The IMF provides ready credit to a LDC with balance of payments problems equal to the reserve tranche – the country's original contribution of gold – or 25 percent of its initial contribution or quota. Beyond that, other credit lines include the first credit tranche, with 25 percent of the quota, granted on adoption of a program to

overcome international payments difficulties; an extended facility, with 150 percent of the quota, based on a detailed medium-term program; a supplementary financing facility subsidy account, 140 percent of quota (financed by repayments from trust fund loans and voluntary contributions) to support standby arrangements for eligible low-income LDCs under previous programs; a compensatory and contingency financing facility (CFF), 75 percent of quota, to finance a temporary shortfall in export earnings or excess costs of cereal imports beyond the country's control; buffer stock financing, 50 percent of the quota, to stabilize export earnings; an oil facility, funds borrowed from oil-exporting countries to lend at competitive interest rates to LDCs with balance of payments deficits; and a subsidy account, contributed by 25 DCs and capital surplus oil exporters that makes available interest subsidies to low-income countries (Grubel 1981:531–533). To illustrate, the financial intermediation of the IMF enabled India to borrow $2.85 billion from Saudi Arabia in 1981 at an interest rate of 11 percent, compared to 18 percent in the commercial markets.

Yet, between 1983 and 1985, most special funding beyond direct IMF credits dried up, with net lending to LDCs falling from $11.4 billion to $0.2 billion, reducing IMF leverage to persuade LDCs to undertake austerity in the face of internal political opposition. However, from 1986 to 1988, the IMF added a **structural adjustment facility (SAF)**, which provides concessional assistance as a portion of a package of medium-term macroeconomic and adjustment programs to low-income countries facing chronic balance of payments problems; added an **enhanced structural adjustment facility**, renamed the **Poverty Reduction and Growth Facility (PRGF)**, "to foster durable growth" that raises living standards for the poorest IMF members making adjustments; and restored the CFF with an average grant element of 20 percent. The first two facilities were financed by a rotating fund from recycling the IMF Trust Fund (from the sale of IMF gold) and by Japan and European countries with external surpluses, but not the United States, which had an international deficit and was opposed to IMF long-term concessional aid. As an example of how this aid works, in 1988, the IMF approved $85 million ($35 million as SAF and $18 million as supplementary funding) for Togo, whose export earnings from cocoa, coffee, palm products, and peanuts had declined from 1985 to 1987 (Feinberg 1986:14–18; World Bank 1988i:141; *IMF Survey*, various issues) and, in 1996–2003, support for the initiative for highly indebted poor countries (HIPCs), "countries that pursue IMF- and [World] Bank-supported adjustment and reform program, but for whom traditional debt relief mechanisms are insufficient" (IMF 2004) (see Chapter 16).

In 1999, in response to the Asian financial crisis of 1997–98, the IMF established Contingent Credit Lines (CCL), a precautionary defense for members with transparency and sound policies who might, however, be vulnerable to contagion from capital account crises in other countries. After four years of disuse, CCL was discontinued in 2003. Countries were reluctant to use the CCL, for fear of being labeled as subject to possible crisis!

In the IMF and World Bank, the collective vote of high-income OECD countries comprises a substantial majority of the total. The U.S. view of policy for LDCs is the most dominant among high-income OECD countries. The U.S. view (Summers

1998:14) corresponds closely to IMF policy, as the United States, with 17.5 percent of IMF shares, only needs a few DC allies to deny an IMF loan. Indeed, Strom Thacker's (1999) econometrics provides "strong evidence that the political interests of the U.S. drive much of the behavior" of the IMF. Robert Barro and Jong-Wha Lee's (2002) analysis of IMF lending, 1975 to 1999, shows that an LDC's political proximity to the United States (that is, the percentage of times that country voted in the U.N. General Assembly along with the United States) significantly increases the probability and size of an IMF loan.[16] More explicitly, U.S. voting for IMF stabilization and structural adjustment lending for LDCs is significantly related to the recipient's support of U.S. foreign policy stances. (A political and strategic motivation – to promote democracy and private enterprise and minimize Soviet influence in the third world – was important in congressional approval of President Harry Truman's call in 1949 for U.S. "Point Four" economic assistance to LDCs.)

Columbia's Jeffrey Sachs opposes IMF and World Bank structural adjustment programs in Africa, arguing that the Bretton Woods' institutions cannot force good governance with their average of 117 loan conditions. These programs delegitimize African governments, increasing their vulnerability to overthrow, and do not emphasize diversifying production and promoting exports. The high-interest low-inflation strategies of the Fund and Bank were "suffocating economic growth" in Africa (Pan-African News Agency 1998).

Chris Cramer and John Weeks (2002:43–61) evaluate how IMF and World Bank macroeconomic stabilization (monetary, fiscal, and exchange-rate policies) and structural adjustment (privatization, deregulation, wage and price decontrol, and trade and financial liberalization) programs affect economic growth and income distribution. These program, almost universal among LDCs after 1979, were mostly introduced in response to chronic macroeconomic imbalances and external deficits, and required borrowing from the IMF and World Bank as lenders of last resort. The standard orthodox packages, with emphases on compressing money demand, raising interest rates, and reducing the role of the state (Polack 1997:16–18), have cut economic growth and increased the probability of political instability.

Barro and Lee (2002) find that, other things held constant, IMF lending has no effect on economic growth during the simultaneous five-year period but has a significantly negative effect on growth in the subsequent five years. The Brandt report even contends that the IMF's insistence on drastic measures in short time periods imposes unnecessary burdens on low-income countries that not only reduce basis-needs attainment but also occasionally lead to "IMF riots" and even the downfall of governments (Independent Commission on International Development Issues 1980:215–216). In 2004, the Independent Evaluation Office of the IMF stated that the PRGF's achievements had "fallen short of the ambitious expectations set out in the original policy documents, [especially] in improving conditions in the world's poorest

[16] Roubini and Setser (2004) are critical of IMF and DC rescue packages to support bailouts of countries that owe rich countries' creditors and banks. The two authors favor smaller packages, implying only partial bailouts that "bail in" (or require losses from) U.S. and DC creditors that make risky loans to LDCs.

countries, . . . fail[ing] to address controversial policy issues as well as [lacking] clear benchmarks against which to monitor progress." The report called for greater flexibility "to accommodate the diversity of country political and administrative systems and constraints" and asked "countries to define – in a manner open to public scrutiny – their own benchmarks and objectives for improving policy-making processes" (*World Bank Development News*, July 29, 2004).

Paul Krugman (1999:115) criticizes the IMF for its priority, in Thailand, Indonesia, Korea, and other Asian countries undergoing crisis in 1997, on raising taxes and cutting spending to reduce budget deficits and raising interest rates, adding perhaps tongue-in-cheek that "governments [must] show their seriousness by inflicting pain on themselves." The effect was to reduce demand, worsening the recession and feeding panic.

Surely the IMF must be satisfied that a borrower can repay a loan. And there may be few alternatives to monetary and fiscal restrictions or exchange-rate devaluation for eliminating a chronic balance of payments deficit. Furthermore, as Chapters 16 and 19 indicate, the IMF's PRDG may have recently put more emphasis on growth and efficiency and less on reducing domestic demand and attaining external balance. Moreover, although the third world's collective vote in the IMF, based on member quotas, is 40 percent, LDCs often support DCs in laying down conditions for borrowing members so as not to jeopardize the IMF's financial base. Furthermore, as Kenneth Rogoff, IMF Chief Economist, 2001–03, argues (2004:65), just because we see doctors around plagues doesn't mean they cause them; just because IMF lending accompanies LDC austerity doesn't mean the IMF is the cause.

Other major multilateral sources of nonconcessional lending in 2002 were the Inter-American Development Bank, the Asian Development Bank, the European Union, and other regional development banks.

Perverse Capital Flows: From LDCs to DCs

The Nobel laureate Robert Lucas (1990:92–96) asks: "Why doesn't capital flow from rich to poor countries?" The law of diminishing returns implies that the marginal productivity of capital is higher in a capital-scarce, labor-abundant economy such as India than in the United States, a capital abundant country. Lucas estimates that, with an Indian worker of the same quality as an American worker, India's marginal product of capital should be 58 times as in the United States. Even when Lucas concedes that one U.S. worker, with more human capital, may be as productive as five Indian workers, India's predicted return to capital would still be a multiple of the return of the United States. Lucas surmises that DC capital in LDCs encounters capital market imperfections and restrictions, specifically, economic institutions and policies and political risks that make it difficult to enforce international borrowing agreements.

Moreover, would an MNC's technology be the same in the headquarters and LDC affiliate? Perhaps not, as technology usually needs to be modified when shifted to a different economy and culture. Chapter 16 discusses capital flight in more detail.

Carmen Reinhart and Kenneth Rogoff (2004:53–58) have another explanation for the paradox of poor to rich capital flows: the prime role of political and credit-market risk in many LDCs. They show that the number of years a country has been in default during the last 55 to 60 years is central in explaining capital flows and per-capita income levels. Ironically, the true paradox, they indicate, may be that "too much capital . . . is channeled to 'debt-intolerant' serial defaulters."

Massive Capital Inflows to the United States

The major example of counterintuitive capital inflows is that to the United States. Since the last quarter of 1985, the United States has been the world's largest international debtor. By the end of 2003, the U.S. gross external debt, a stock concept that represents the accumulation over time of international deficits, was $6,800,485 million (U.S. Treasury 2003).

Indeed, in 2000, the peak year of the business cycle, the U.S. current account deficit was financed by 8 percent of the combined savings of the rest of the world! By 2003, the deficit represented 10 percent of the rest of the world's savings (World Bank 2003e:37).

How can we explain this? Because of the widespread use of the dollar for international payments and reserves, global companies and central banks have accumulated dollar assets amid the United States' persistent balance on goods, services, and income deficit.

The United States was able to do this because it has been the world's major reserve and trading currency. Unlike Argentina, Thailand, and Nigeria, the United States has borrowed its funds in its own currency, U.S. dollars, at relatively low interest rates. As pointed out in Chapter 17, the United States has had a persistent surplus (comparative advantage) in the trade of services and financial assets. U.S. rapid productivity growth, at least in the 1990s, from cheaply coordinating global value-added steps into final assembly and sales, increased foreigners' expectations of high rewards from their investments. Productivity growth made U.S. assets extremely attractive to both domestic and international investors (Mann 1999). As a balance of payments statement similar to Table 15-1 points out, the U.S. capital account, that is, capital inflows and the rest of the world's increased holding of U.S. assets, a flow concept, equals the current account, a major component of which has been the trade deficit.

The opportunity cost of investment forgone in the LDCs' domestic development is substantial. Furthermore, exporters to the United States or those competing with those selling at dollar prices suffered terms of trade losses, whereas nonoil exporters priced in currencies other than dollars enjoyed terms of trade benefits, including price gains when importing petroleum, priced in dollars.

Economists such as Catherine Mann think the continuing deficit in the United States is unsustainable, partly as interest and dividends to service the debt increases as U.S. liabilities to foreigners rise. In addition, some world's asset holders may shift from the U.S. dollar as reserve currency and medium of exchange to other currencies, such as the **euro**, the common currency created by the 12 members of the

European Economic and Monetary Union (a subset of the European Union) in 1999, a move that may weaken the dollar. Foreign central banks, who financed 38 percent of the U.S. current account deficit in 2003 (Ip 2004:A2), or other foreigners could eventually stop providing credit to the United States, which would have to reduce consumption to increase investment and reduce its foreign debt. In any event, the continuing external deficit makes the United States vulnerable to the confidence of foreign asset holders (Alan Greenspan, Speech, November 19, 2004).

Conclusion

Globalization involves the expansion of economic activities across nation states, deepening economic openness, integration, and interdependence among countries. External openness generally benefits most of the world but is likely to marginalize peripheral countries, especially their poorest citizens.

A capital inflow enables a country to invest more than it saves and import more than it exports. A newly industrializing country that effectively uses an inflow of foreign funds should usually be able to pay back its debt from increased output and productivity.

Exports minus imports of goods and services equal the international balance on goods, services, and income. Aid, remittances, loans, and investment from abroad finance a balance on goods and services deficit.

Countries give concessional aid to LDCs for reasons of national economic and political interest, ideology, humanitarianism, and global political maintenance.

In 2001, aid from Organization for Economic Cooperation and Development (OECD) countries (the West and Japan) fell to $51.4 billion, 0.22 percent of GNP. Aid given by the United States, the largest giver, was also lowest as a percentage of GNP. The grant component of OECD concessional aid to LDCs was 94 percent.

The major multilateral agencies providing concessional aid to LDCs were the International Development Association (a World Bank affiliate), the Commission of the European Communities, and the United Nations.

A large share of international trade is multinational corporations' intra-firm trade. Although the United States still accounts for the largest share of the world's foreign, private investment, its share steadily declined between 1971 and 2001.

The largest multinational corporations have an economic strength comparable to that of the LDCs with which they bargain. In 2001, the top 10 recipients received 73 percent of inward foreign direct investment (FDI). China was the leading LDC recipient of FDI.

Although MNCs in developing countries provide scarce capital and advanced technology for growth, doing so may increase LDC dependence on foreign capital and technology. The LDCs need a judicious combination of MNCs, joint MNC–local ventures, licensing, and other technological borrowing and adaptation.

Loans to developing countries at bankers' standards fell from 1990 to 2002.

Why doesn't capital flow from rich to poor countries? LDC capital markets are imperfect and often subject to political risk.

Why does 10 percent of the rest of the world's savings flow to the United States? The United States has the most highly developed market for financial assets, and attracts savings as the world's largest reserve and trading currency.

TERMS TO REVIEW

- aid (official development assistance)
- antiglobalization
- average propensity to remit
- bilateral aid
- capital import
- concessional funds
- current account
- direct investment
- euro
- eurocurrency
- eurodollars
- fungible
- General Agreements on Tariffs and Trade
- globalization
- global public goods
- international balance of payments statement
- international balance on goods and services
- International Development Association (IDA)
- International Monetary Fund (IMF)
- investment
- multilateral aid
- multinational corporations
- oligopoly
- Organization for Economic Cooperation and Development (OECD)
- portfolio investment
- public goods
- remittances
- turnkey projects
- vertical integration
- World Bank
- *hawala* system

QUESTIONS TO DISCUSS

1. Using national income equations, explain an inflow of capital from abroad in terms of expenditures–income, investment–saving, and import–export relationships. Indicate the relationships between expenditures and income, investment and saving, and imports and exports for a country paying back a foreign loan. Does repaying the loan have to be burdensome?
2. What is globalization? What are the similarities and differences between globalization, 1870–1913, and that after 1950? How much has the world's people gained from globalization? What about LDCs? Which groups are the major winners and which the main losers?
3. To what extent does the Brandt Commission's view of DC and LDC interdependence conflict with Frank's view of LDC dependence?
4. How can foreign aid, capital, and technology stimulate economic growth? How could the roles of foreign aid, capital, and technology vary at different stages of development?
5. What are Chenery and Strout's two gaps? How do foreign aid and capital reduce these two gaps? What are the strengths and weaknesses of the two-gap analysis?

6. What are sources for financing an international balance on goods and services deficit? Which was the most important source for LDCs in the 1990s?
7. How effective has DC aid been in promoting LDC development? How effective has food aid been?
8. What are the costs and benefits for donor countries giving aid to LDCs? Do the costs outweigh the benefits? Choose one donor country. What are the costs and benefits for this country giving aid? Do the costs outweigh the benefits?
9. What is the trend for OECD aid as a percentage of GNP in the last two decades?
10. Compare economic aid to low- and middle-income countries since the 1980s? How do you explain changes in allocation over time?
11. How important was multilateral aid as a percentage of total economic aid in the last two decades?
12. What can LDCs do to increase direct foreign investment in their countries?
13. What are the costs and benefits to LDCs of MNC investment? How has the balance between costs and benefits changed recently?
14. What was the trend in the ratio of official aid relative to commercial loans to LDCs in the last three to four decades? How important is multilateral lending as a source of nonconcessional loans?
15. How important has the World Bank been as a source of funds for LDCs? How important has the IMF been as a source of funds for LDCs? Do you think there should be any changes in World Bank and IMF programs and conditions?

GUIDE TO READINGS

There are a plethora of reports by international agencies related to Chapters 15–17 on the international economics of development. Annual publications include the World Bank's *World Development Report, World Development Indicators, Global Economic Prospects*, and *Global Development Finance*; UNCTAD's *World Investment Report, Trade and Development Report*, and *Least Developed Countries*; IMF's *World Economic Outlook* (also balance of payments data by world region); OECD's *Development Cooperation* and *OECD in Washington: Recent Trends in Foreign Aid* (consult source in Bibliography); and corresponding CD-ROMs. The Institute of International Economics in Washington, D.C. (http://www.iie.com) provides papers and speeches and lists many monographs on the balance of payments, aid, and FDI.

For discussion of the meaning of globalization and some historical parallels to contemporary globalization, see Nayyar (1997). Rodrik (1998) discusses how globalization has increased social tensions. Other economists on globalization include Nayyar, ed., *Governing Globalization* (2002), Stiglitz and Muet, eds., *Governance, Equity, and Global Markets* (2001), Bhagwati, *In Defense of Globalization* (2004), Stiglitz, *Globalization and Its Discontents* (2002b), Chang, ed., *Joseph Stiglitz and the World Bank: The Rebel Within* (2001), and World Bank, *Globalization, Growth, and Poverty* (2002). The listserv *World Bank Development News* is a good source to keep up on recent developments.

Easterly (2001a) critiques World Bank and U.S. aid. World Bank (2000a:Chapter 8) discusses African aid dependence, poverty-reducing aid, aid delivery, and aid outcomes, and World Bank (2002a) makes the case for Bank aid. IFPRI's Web site, http://www.ifpri.org, has information on sources on food aid. The U.S. Agency for International Development Web site is http://www.usaid.gov/.

Abhijit Banerjee, Esher Duflo, Sendhil Mullainathan, Marianne Bertrand, and Harvard's Michael Kremer, at MIT's Poverty Action Lab, use randomized experiments to test the effectiveness of aid projects. Duflo found that providing poor Kenyan students with free uniforms or a porridge breakfast increased school attendance but that drugs to treat intestinal worms, a cost of $3.50 for a year's schooling, was even more cost-effective. Mullainathan, in a project to test job discrimination in Boston and Chicago, found that applicants with white-sounding names (such as Emily Walsh or Brendan Baker) were more likely to receive requests for interviews than those with black-sounding names (such as Lakisha Washington or Jamal Jones) (Dugger 2004; Poverty Action Lab 2004).

16 The External Debt and Financial Crises

Scope of the Chapter

Chapter 15 mentioned that the LDCs' persistent deficit on the balance on goods, services, and income through the 1980s and 1990s, together with a decline in loans at bankers' standards in the mid- to late 1990s, contributed to a continuing LDC debt crisis. The debt crisis for Latin America and other middle-income borrowers, primarily owed to commercial lenders, was of a different nature than that of sub-Saharan Africa, who owed its debts primarily to bilateral government and multilateral lenders. Jubilee 2000, launched by nongovernmental organizations, put pressure on the World Bank, IMF, and DC donors to relieve, write down, or forgive the debts of the highly indebted poor countries (HIPCs), largely from Africa.

The most fundamental change in the international economic system in the 1990s was the incredible rise in international capital mobility, with about $2 trillion crossing borders daily (You 2002:216), from which middle-income countries received massive capital inflows. Global foreign exchange transactions rose from a mere $15 billion per day in 1973 to $60 billion in 1983, exploding to $900 billion in 1992, and continuing to increase in the years after that. Thus, the worldwide ratio of foreign exchange transactions to world trade was 9:1 in 1973, 12:1 in 1983, and 90:1 in 1992. World GDP in 1992 was $64 billion daily compared to $10 billion exports and $900 billion foreign exchange transactions, in excess of the foreign exchange reserves of the world's central banks, $693 billion, inadequate to cope with sudden shifts in the direction of global currency flows (Nayyar 1997:3–4). Not surprisingly, financial crises occurred in Mexico (1994), Southeast and East Asia (1997–99), and Argentina (2001–03) following capital-account liberalization and substantial increases in capital inflows.

On the one hand, Ranciere, Tornell, and Westerman (2003) show that among 52 LDCs, financial liberalizers grew by 2 percentage points faster than nonliberalizers, with bank credit growth responsible for about half the advantage. Yet, on the other hand, East and Southeast Asian countries experiencing financial and currency crises suffered an output reduction from 1997 to 2001 worse than the Great Depression. Still, despite Thailand's depression during the 1997–99 financial crisis, its growth in GDP per capita was 4.5 percent yearly, 1980–2001, compared to India's 3.3 percent annual growth for the same period (Economist 2003h:77), a cumulative growth difference of more than 50 percent.

TABLE 16-1. Total External Debt of LDCs (selected years, 1970–2001, in $ billions)

1970	49
1976	157
1982	816
1984	908
1986	1216
1989	1411
1992	1662
1995	2066
1998	2395
1999	2427
2000	2364
2001	2322

Sources: Organization for Economic Cooperation and Development 1988:218; World Bank 1978i:96–97; World Bank 1988i:258–259; World Bank 1993i:170–171; World Bank 2003e.

This chapter examines both debt and financial crises, despite their differences in origin. We also discuss the definition of external debt, the origins of the debt crisis, how capital flight exacerbates the debt problem, the U.S. bankers' and LDC governments' perspective on the crisis, indicators of debt, net transfers, the major LDC debtors, the roles of World Bank and IMF lending and policies, proposals to resolve the debt crisis, and the distributional effects of the debt crisis and relief measures.

Definitions of External Debt and Debt Service

A country's **total external debt** (**EDT**) includes the stock of debt owed to nonresident governments, businesses, and institutions and repayable in foreign currency, goods, or services. EDT includes both short-term debt, with a maturity of one year or less; long-term debt, with a maturity of more than one year; and the use of IMF credit, which denotes repurchase obligations to the IMF. External debt includes public and publicly guaranteed debt, as well as private debt (World Bank 1993i:ix, 158–159).

Debt service is the interest and principal payments due in a given year on long-term debt.

Origins of Debt Crises

Except for modest reductions in the early 1990s and early years of the 21st century, nominal LDC external debt increased from 1970 to 1999 (Table 16-1) for several reasons:

1. External debt accumulates with international balance on goods, services, and income deficits. LDC international deficits increased from a series of global

shocks, including the 1973 to 1974 and 1979 to 1980 oil price rises (which reduced non-oil-producing LDCs' terms of trade) and the recession of the industrialized countries, 1980–83, and continuing slow growth during the remainder of the 1980s (with sharply falling commodity prices, slowed export expansion, and increased OECD protectionism). Deficits increased throughout the 1990s until mid-1998 through 2003, as borrowers paid down debts (Chapter 15).

2. As indicated in Chapter 15, DCs relied more on private bank and other commercial lending, increasing its ratio to official aid from 1970 to the mid-1980s. Official development assistance (ODA) declined sharply in 1982–83 during the DCs' recession, when LDC external debt grew at a faster rate from rising interest rates. After the mid-1980s, the trend for both commercial flows and official aid was downward or constant, at best, in real terms (Overseas Development Council 1982b:225–468; IMF 1988:96–109; and Chapter 15).

3. Like Iowa farmers and Pennsylvania small business people, LDCs reacted to the input price hikes of 1973 to 1975 by increasing their borrowing. The quadrupling of world oil prices in 1973 to 1974 poured tens of billions of petrodollars into the global banking system, which were "recycled" as loans to LDCs and U.S. farmers and business people at low rates of interest. They were lured by **negative world real interest rates**, the nominal rates of interest minus the inflation rate, −7 percent in 1973, −16 percent in 1974, and −5 percent in 1975. Many of these debts came due in the early 1980s when high nominal rates of interest, together with low inflation rates, resulted in high real interest rates (9–12 percent in 1982 to 1985) (Krueger 1987:169; Rahimibrougerdi 1988:6, 83; Cavanagh, Cheru, Collins, Duncan, and Dominic Ntube 1985:25). For many LDCs, the debt burden became a treadmill, with debt rollovers or rescheduling or, worse yet, defaults with higher interest rates or lack of access to credit.

   The average interest rate for fixed-interest loans (generally subsidized or long term) rose from 4 percent (1970) to 6 percent (1981) to 7 percent (1986). From 1971 to 1981, interest rates on floating-interest loans (primarily from commercial sources) increased from 8 percent to 18 percent. The decrease in the average loan maturity from 20 years in 1970 to 16 years in 1986, as well as a reduction in the average grace period over the same period from 6 years to 5 years, aggravated the problem of debt service (World Bank 1988i:260–261), reducing the probability of eliminating the cycle of debt and contraction.

4. The inefficiency and poor national economic management indicated before in Nigeria, Zaire, and Ghana, as well as in Latin American military governments, in the 1970s, meant no increased capacity to facilitate the export surplus to service the foreign debt. Argentina's substantial increase in public spending in the 1970s, financed by borrowing from abroad, increased external debt and reduced export capacity.

   Chapter 19 indicates that the efficiency of public enterprise is potentially comparable to that of private enterprise, given a certain size firm, but that public firms are more likely to choose an excessive scale of operations, have easier access to state financing to mute bankruptcy, and more pressure to provide jobs and

contracts to clients and relatives than private enterprises. Few LDCs achieve the high quality of economic management by the civil service and economic policy making insulated from political pressures achieved by Taiwan and South Korea (Chapter 3). In the early 1980s, before World Bank– and IMF-imposed reforms, government employment was high in LDCs, as Chapter 19 indicates.

To illustrate, in Nigeria, government expenditures as a percentage of GDP rose from 9 percent in 1962 to 44 percent in 1979 but fell to 17 percent from World Bank structural adjustment programs, such as the one in effect from 1986 to 1990, which emphasized privatization, market prices, and reduced government expenditures. Nigeria had centralized power during its 1967–70 civil war with the breakup of regions, and in the 1970s, as the oil boom enhanced the center's fiscal strength. Expansion of the government's share of the economy did little to increase political and administrative capacity, but it did increase incomes and jobs that political elites could distribute to their clients (Central Bank of Nigeria 1960–80; Nigeria, Office of Statistics 1960–80; Ogbuagu 1983:241–266; Nafziger 1993:50). In the 1990s and early 20th century, smaller government and Bank–Fund programs only shifted the Nigerian elite's opportunity for rent seeking; use of state power to divert oil and treasury funds to private use remained rampant.

5. The adjustment essential to export more than was imported and produce more than was spent required translating government spending cuts into foreign exchange earnings and competitive gains, usually necessitating reduced demand and wages, real currency depreciation, and increased unemployment. But when many other LDCs go through the same adjustment process, the benefit to any given LDC was less. In 1985, for example, the pressure on debtor countries to increase export revenues contributed to a glut in primary products and a collapse of their prices. In the 1990s, with increased participation by middle-income countries in DC-organized industrial value-added ladders, LDC competition entered another arena.

   Mexico reduced real wages 40 percent, increased the unemployment rate, and depreciated the peso from 1980 to 1987 to increase its external competitiveness by 40 percent. Currency depreciation also raised the nominal interest rate essential to spur Mexicans to hold pesos rather than U.S. dollars. Few countries were willing to contract domestic employment and real wages to return the balance on goods and services account to equilibrium (World Bank 1985i:62–63; Dornbusch 1986:71–75; Sachs 1988:20).

6. The lack of coordination by leading DCs in exchange-rate and financial policies under the world's post-1973 **managed floating exchange-rate system** (an international currency system where central banks intervene in the market to influence the price of foreign exchange) resulted in gyrating exchange rates and interest rates. Efforts to set target zones within which key DC exchange rates will float have only increased destabilizing capital movements and unstable exchange-rate changes when inevitably rates approach zone boundaries. This global instability increased external shocks and undermined long-run LDC planning (Khatkhate 1987:vii–xvi).

By contrast, recent empirical evidence indicates that smoothing DC exchange-rate fluctuations increases DC macroeconomic and external instability, whereas optimal fluctuations are fairly substantial, creating an environment that destabilizes the value of currencies that LDCs hold as international reserves.

With regard to DCs' currencies, LDCs are damned if they're stable and damned if they're not. Developing countries incur costs from the fact that they rarely can undertake international transactions in their own currency.

7. When debts are denominated in U.S. dollars, their **appreciation** (increased value relative to other major currencies) during the early 1980s and much of the 1990s increased the local and nondollar currency cost of servicing such debts. Or, as in the late 1980s and early years of the 21st century, nondollar debts increased when measured in dollars that **depreciate** (reduce their value relative to other major currencies). For example, the dollar value of Indonesia's 1985 debt to the Japanese, ¥1250 billion, increased from $5 billion to $10 billion in 1988, as the dollar depreciated from ¥250 = $1 to ¥125 = $1. Volatility in leading reserve currencies, the U.S. dollar, euro, and Japanese yen, increases instability and costs in LDCs.
8. International lenders required LDC governments to guarantee private debt. When private borrowers defaulted, the state's external debt service increased.
9. Overvalued domestic currencies and restrictions on international trade and payments dampened exports, induced imports, and encouraged capital flight from LDCs, exacerbating the current account deficit and external debt problems. One indicator of overvaluation, the black market exchange rate vis-à-vis the official nominal exchange rate, appreciated in sub-Saharan Africa from 1.36 in 1971 to 1.53 in 1980 to 2.10 in 1983, before falling (often at World Bank/IMF insistence) to 1.38 in 1985, but increasing to 1.97 in 1990 before again declining to 1.41 in 1994 and 1.27 in 1999 (Aluko 2001:3). These exchange-rate distortions reduced export competitiveness while spurring applications for artificially cheap foreign capital and inputs (World Bank and UNDP 1989:12–17; Aluko 2001:3).
10. Substantial capital flight from foreign aid, loans, and investment and capital outflows of portfolio investors.

Capital Flight

Some bankers and economists feel it is futile to lend more funds to LDCs if a large portion flows back through capital flight. John T. Cuddington (1986) estimates that Mexico's **propensity to flee** attributable to additional external borrowing, 1974 to 1984, was 0.31, meaning that 31 cents from a dollar lent by foreign creditors left the country through capital flight! The Organization for Economic Cooperation and Development suggests that the $70 billion capital flight from Latin America, 1982, was double the interest portion of the Latin debt-service payments for that year. Capital flight intensifies foreign exchange shortages and damages the collective interest of the wealthy classes that buy foreign assets. Reversing capital flight will not eliminate

the debt crisis but can reduce debt burdens and commercial bankers' justification for resisting increased exposure to debtor countries (Lessard and Williamson 1987; Williamson and Lessard 1987; Bank for International Settlements 1989:135–136; Naylor 1989:330–331).

DEFINITIONS

The many methods of exporting capital illegally include taking currency overseas, sometimes in a suitcase, directly investing black-market money, and false invoicing in trade documents. Which of the domestic holdings of foreign assets (property, equity investment, bonds, deposits, and money) should be classified as domestic capital flight rather than normal capital outflows? Defining **capital flight** as resident capital outflow makes it easier to conceptualize and measure than alternative definitions that characterize it as illegal, abnormal, or undesirable to government or due to overinvoicing imports or underinvoicing exports.[1] Using the World Bank's estimates of capital flight as equal to current account balance, net foreign direct investment, and changes in reserves and debt, the largest capital flights, 1976 to 1984, were from Argentina, Venezuela, Mexico, Indonesia, Syria, Egypt, and Nigeria, whereas net flights from Brazil (whose real devaluation in 1980 was substantial), South Korea (whose exchange rate remained close to a market-clearing rate), Colombia, and the Philippines were negative (Cumby and Levich 1987:27–67).

Whenever international capital markets are highly integrated and transaction costs are low, private individuals will have strong incentives to circumvent what appears to be arbitrary barriers to capital movements, as even the United States found in the 1960s when interest equalization taxes and foreign credit restraint programs resulted in Eurocurrency and Eurobond market expansion to satisfy the offshore demand for funds (Lessard and Williamson 1987).

CAUSES

Resident capital outflows result from differences in perceived risk-adjusted returns in source and haven countries. We can attribute these differences to slow growth, overvalued domestic currencies, high inflation rates, confiscatory taxation, discriminatory interest ceilings or taxes on residents, financial repression, default on government obligations, expected currency depreciation, limitations on convertibility, poor investment climate, or political instability in source countries, all exacerbated by the United States' abandoning income taxation on nonresident bank-deposit interest and much other investment income and (in the early 1980s) paying high interest rates. In 1982, Mexico's devaluation and inflation "almost totally wiped out the value of obligations denominated in Mexican pesos." The domestic entrepreneurial energies lost from these policies were substantial (Williamson and Lessard 1987:21).

[1] For European Bank for Reconstruction and Development economists Willem Buiter and Ivan Szegvari (2002), capital flight is a fuzzy concept that needs to be addressed from an economic policy, not criminal justice, perspective.

A ZAIRIAN PATHOLOGY

Zaire, now Congo–Kinshasa, whose capital flight cannot be tracked statistically, is a blatant example of flight from LDCs desperately needing foreign exchange to resolve debt problems. Thus, foreign exchange from smuggling Zairian goods, such as diamonds, abroad is so widespread that a neighbor, Congo–Brazzaville, became a diamond exporter of some importance in the 1970s and early 1980s without having any diamond deposits! For two decades, Zaire stumbled from one debt crisis to another, lacking the capacity to pay debt service, which was $375–$625 million annually in the 1980s (Nafziger 1993:92–93; World Bank 1993g:Vol. 2, 500).

For Pierre Dikoba, Zairian President Mobutu Sese Seko's "loot[ing] the country" explained the torn tin roof, malarial mosquitoes, and the lack of furniture, books, and pictures in the Kinshasa primary school where he taught in 1991 (Davison 1991:A11). In 1988, U.S. House Foreign Affairs Chair Howard Wolpe asserted: "Literally hundreds and hundreds of millions of dollars have vanished into the hands or bank accounts of the president and his collaborators" (Pound 1990:A4). Peter Korner and colleagues (1986:137) estimated Mobutu's 1984 overseas wealth at $4 to $6 billion, invested in Swiss bank accounts and Western real estates, enough to solve Zaire's debt crisis. Indeed, if Mobutu and his allies had not taken out of the country a large proportion of funds the Zairian government borrowed abroad, Zaire might not have had a debt crisis (Erbe 1985:268–275). In 1977, President Mobutu denounced the Zairian disease, stating that "everything is for sale, everything is bought in our country. And in this traffic, holding any slice of public power constitutes a veritable exchange instrument, convertible into illicit acquisition of other goods" (Lemarchand 1979:237–260).

Was Mobutu unique? Chapter 4 discussed predatory rulers and failed states, in which rulers and warlords profit more from political disorder than from order. This syndrome did not die with Mobutu in 1997.

HOW TO REDUCE FLIGHT

Source countries need robust growth, market-clearing exchange rates and other prices, an outward trade orientation, dependable positive real interest rates, fiscal reform (including lower taxes on capital gains), taxes on foreign assets as high as domestic assets, more efficient state enterprises, other market liberalization, supply-oriented adjustment measures, a resolution of the debt problem, and incorruptible government officials (Williamson and Lessard 1987:28–56). Haven countries can lower interest rates and cease tax discrimination favoring nonresident investment income, whereas their banks can refuse to accept funds from major LDC debtor countries.

Just listing policies for source and haven countries suggests the difficulty of the problem. For Rimmer de Vries (1987:188), capital flight is the caboose, not the locomotive, meaning that capital flight is symptomatic of the financial repression and economic underdevelopment at the root of the debt crisis, not the cause of it. We have another vicious circle – low growth, capital flight, and foreign exchange restrictions that hamper growth. Ironically, John Williamson and Donald R. Lessard (1987:57),

despite recommendation of financial and exchange-rate liberalization, indicate that sometimes LDCs may have to use **exchange controls**, which limit domestic residents' purchase of foreign currency, to limit the exodus of new savings. The *Africa Research Bulletin* (*Economic Series*, October 15, 1991, p. 10550) urges the United States to remove tax policies favoring nonresident bank deposits and Switzerland to lift secrecy protection for bank deposits (dubbed Africa's second AIDS epidemic, "acquired Investments Deposited in Switzerland") of African politicians and economic malfeasors facing judicial due process for criminal activity.

The Crisis from the U.S. Banking Perspective

U.S. regulations restricting interstate commercial bank activity and the rates that banks could pay for deposits enhanced incentives for American and European banks in the 1960s and 1970s to expand into the market for dollar deposits (or eurodollars, as discussed in Chapter 15) located in cities of Europe, East Asia, the Middle East, Nassau, Panama, Bahrain (and later New York City) that comprise a regulatory no-man's-land. The successive waves of new U.S., European, and Japanese banks entering the eurocurrency market, with no reserve requirements, fueled credit expansion, especially in the 1970s. European, Japanese, and American regional banks challenging leading American bank domination sought new markets in the 1970s. After 1974, as capital-surplus oil-exporting countries recycled petrodollars to expand credit supply while Western demand for credit contracted, bankers viewed LDCs as a new frontier for lending. LDC borrowers were attractive, as they paid a premium over DC borrowers and were thought to pose little risk because borrower or guarantor governments, deemed incapable of bankruptcy, would service their debt. Ruling elites in Latin America and sub-Saharan Africa were lured by the use of easy bank credit to enhance coalition building while postponing large debt servicing for (perhaps) a future regime (Nafziger 1993:75).

During the 1980s, the inability of LDCs to pay its debt was a major international economic concern of American journalists and scholars. A complete writeoff of third world debts in the early 1980s would have wiped out many major U.S. commercial banks, which had more exposure to LDC debt than banks in any other country. Yet, in the early 1990s, the Harvard economist Benjamin Cohen (1991:47–51) asked: Whatever happened to the third world debt crisis? A partial answer is that, for LDCs, little has changed. In Africa, despite the HIPC (highly indebted poor countries) initiative, and in a few countries in Latin America, the debt overhang still keeps standards of living down and limits the investment needed to end stagnation. Meanwhile, however, LDC debt repudiation no longer threatens money-center banks of New York City, such as Citibank, Manufacturers Hanover, and JP Morgan Chase. These banks have reduced their exposure to third world borrowers, so their defaults endanger neither bank credit ratings and stock prices nor the stability of the U.S. banking system. The policy of the United States in the 1980s focused on saving its banks and averting a debtors' cartel. By 1987, the major creditor banks no longer had to continue lending to LDCs or participate in debt rescheduling to forestall their own collapse. Thus,

although the U.S. government and commercial banks have abandoned their preoccupation with the debt crisis, LDC debt generally does not fall, whereas the crisis has improved only a little in Africa and parts of Latin America.

During the 1980s, when commercial banks held 72 percent of Latin American debt, U.S. banks (holding 36 percent) and British banks, but few continental European banks, were vulnerable to Latin default. LDC debts to U.S. banks as a percentage of their capital grew from 110 percent in 1978 to 154 percent in 1982, before falling to 114 percent in 1986 and 63 percent in 1988. For the nine major U.S. banks, this percentage was even higher: 163 percent in 1978, 227 percent in 1982, 154 percent in 1986, and 198 percent in 1988.

Assume a bank's LDC debt–capital ratio is 100 percent, and the bank writes off 60 percent of LDC debt but none of the other debts. If the loan–capital ratio is 1200 percent (this ratio typically varies between 1,000 and 1,700 percent for U.S. banks), then bad loans as a percentage of capital are at the precarious level of 5 (60/1,200) percent.

In response to nonperforming LDC loans and petrodollar shrinkage from low world oil prices, U.S. banks reduced their loans to oil-importing LDCs from $121 billion in 1982 to $118 billion in 1984 to $100 billion in 1986. Indeed, the United States, which ranked first in the world in commercial bank lending to LDCs from 1970 to 1983, fell to second place from 1984 to 1989, with only about half the loans of Japan. However, from 1989 to 1993, loans to LDCs no longer fell with their major loan restructuring. Also, U.S. bank exposure to LDC foreign debt declined in the mid-1980s from loan writeoffs, write-downs, and asset sales.[2]

In 1988, Latin American, Philippine, and Polish loans held by U.S. banks sold at a 40–70 percent discount on the second-hand market, indicating market expectation of partial default. Secondary market prices of bank debts of severely indebted countries (based on present value of debt service/annual GNP in excess of 80 percent *or* present value of debt service/annual export ratio more than 200 percent) (World Bank 1993g:Vol. 1, 165) ranged from 4 percent for Peru and 6 percent for Cote d'Ivoire to 24 percent for Nigeria to 64 percent for Chile. Steadily increasing discounts for LDC bank debt, the reduction of commercial lending to LDCs, and the increasing interest and principal arrears throughout the late 1980s indicate how much debtor countries' creditworthiness had deteriorated.

Spreads and Risk Premiums

Commercial banks charge a **risk premium** for LDC borrowers, a premium that rises with major financial crises. This premium or spread may vary from interest rates 1–2 percentage points in excess of the **London Interbank Offered Rate (LIBOR)**, a virtually riskless interest rate used as a standard for comparing other interest rates,

[2] Dornbusch (1986:63–86); "Debt Breakthrough," *Wall Street Journal* (December 30, 1987): pp. 1, 4; Sewell, Tucker, and contributors (1988:231); Buiter and Srinivasan (1987:412); *IMF Survey* (January 25, 1988), p. 17, and (December 12, 1988), p. 385.



FIGURE 16-1. Secondary-Market Spreads on Emerging Markets, 1990–2002. *Note:* Country names mark date of financial crisis. *Source:* World Bank 2003h:45.

to 15 percentage points (equal to 1500 **basis points** in Figure 16-1), 14 percentage points at the time of the Russian financial crisis, and lesser points for crises in Turkey, Argentina, and Brazil (Ghai 1991:2).[3] U.S. banks learned their lesson in the 1980s, not repeating their exposure to LDC debt again.

The Crisis from the LDC Perspective

But although DC banks reduced their vulnerability to LDC bad debts in the late 1980s, 1990s, and early years of the 21st century, external LDC debt increased from more than $1 trillion in the late 1980s to $2.3 trillion in 2001. GNP per capita declined in Latin America and Africa during the 1980s, designated a "lost development decade." Severely indebted countries (SICs) of the 1980s grew slower than countries of any debt classification, and more than one annual percentage point slower than LDCs generally. Indeed, from 1980 to 1985, a period of high interest rates and rapid accumulation of debt stock, annual real GNP *per capita* of lower income SICs, primarily from sub-Saharan Africa, fell sharply, by 4.6 percent. Even middle-income SICs' real per capita GNP fell by 2.2 percent during the same period (World Bank 1993g:Vol. 1, 170–233; World Bank 1994i:162–213; United States Council for Economic Advisers 1990:236). In the 1990s, with increased debt negotiations, growth in severely indebted LDCs was not hampered so much.

In sub-Saharan Africa, the debt overhang contributed to the fall in health spending, child nutrition, and infant survival among the poor in the early 1980s, and the decline in real wages, employment rate, and health and educational expenditure shares in the late 1980s. In 1989, the Economic Commission for Africa's Executive Secretary Adebayo Adedeji observed that Africa would not recover without lifting the "unbearable albatross" of debilitating debt burdens, low export prices, and net

[3] One hundred basis points are equal to a 1-percentage point increase in interest rates. However, as Demirguc-Kunt and Detragiache (1994:261–285) point out, commercial lenders charged South Korea (in 1990, still classified as an LDC, with the ninth largest LDC debt), Indonesia, and Turkey lower interest rates than the market rate. Indeed, during the 1980s, these countries sometimes even paid interest rates below LIBOR. The three countries benefited from considerable official borrowing, with substantial concessional components, from DC donors.

capital outflow (including capital transfer to the West by the wealthy and politically influential) (UNICEF 1989; Harsch 1989:47). About the same time, several African countries imposed debt service ceilings or debt moratoria, or simply defaulted on debt.

Debt crises have forced many countries to curtail poverty programs, even though few of these programs have been funded by foreign borrowing. In 1985, Tanzanian President Julius K. Nyerere asked, "Must we starve our children to pay our debt?" UNICEF (1989) found that child malnutrition increased and primary school enrollment rates declined in the 1980s in many least-developed countries as external debt constraints cut spending on services most needed by the poor.

Additionally, some Latin America countries, dominant among severely indebted middle-income countries, experienced deterioration in social indicators during the 1980s. In mid-1985, Peru's President Alan Garcia limited debt payment to 10 percent of exports. Brazil's President Sarney put a moratorium on interest payments for 12 months in February 1987, explaining his country's impatience by indicating that "a debt paid with poverty is an account paid with democracy" (Ranis 1987:189–199; O'Donnell 1987:1157–1166). Creditors cut Brazil's short-term credits, although the U.S. Federal Reserve and Treasury arranged a short-term debt settlement a year later (1988). At a meeting of leaders of debtor nations in late 1987, Argentine President Raul Alfonsin indicated that the West must recognize how "current economic conditions impede our development and condemn us to backwardness. We cannot accept that the south pay for the disequilibrium of the north."

The debt and financial crises in Mexico (1994), Brazil (1998), Russia (1998), Turkey (2000), Argentina (2001), and Thailand, Indonesia, and Korea (1997) reduced output and increased poverty. All except Brazil and Russia had reduced GDP the year after the crisis; Argentina, Indonesia, and Thailand had a fall in GDP of more than 10 percent; and Turkey, Korea, and Mexico reduced output by more than 5 percent (Figure 16-2). Indonesia's national poverty rate rose from 16 percent in 1996 to 27 percent in 1999 (World Bank 2003h:59).

In Argentina, the richest Latin American country in 2001 (inside front cover table), more than 15,000 workers, unemployed, and youth marched December 4, 2002, on the government palace in Buenos Aires in a "national march against hunger." Studies had shown that seven of ten Argentine children "suffer from a serious lack of food" (Vann 2002). The number earning their living scavenging trash doubled in two years to about 40,000 of the 13 million people of greater Buenos Aires (Moffett 2002). Argentina's collapse had a ripple effect on the Southern Cone Common Market (MERCOSUR) countries (Uruguay, Paraguay, and Brazil), contributing to a fall in Latin America and the Caribbean's GDP per capita in both 2001 and 2002, the only LDC region experiencing reductions in both years.

In 1989, in response to increased poverty in adjusting countries, IMF Managing Director Michel Camdessus asserted:

> The first [conviction] is that adjustment does not have to lower basic human standards. . . . My second conviction is that the more adjustment efforts give proper weight to social realities – especially the implications for the poorest – the more

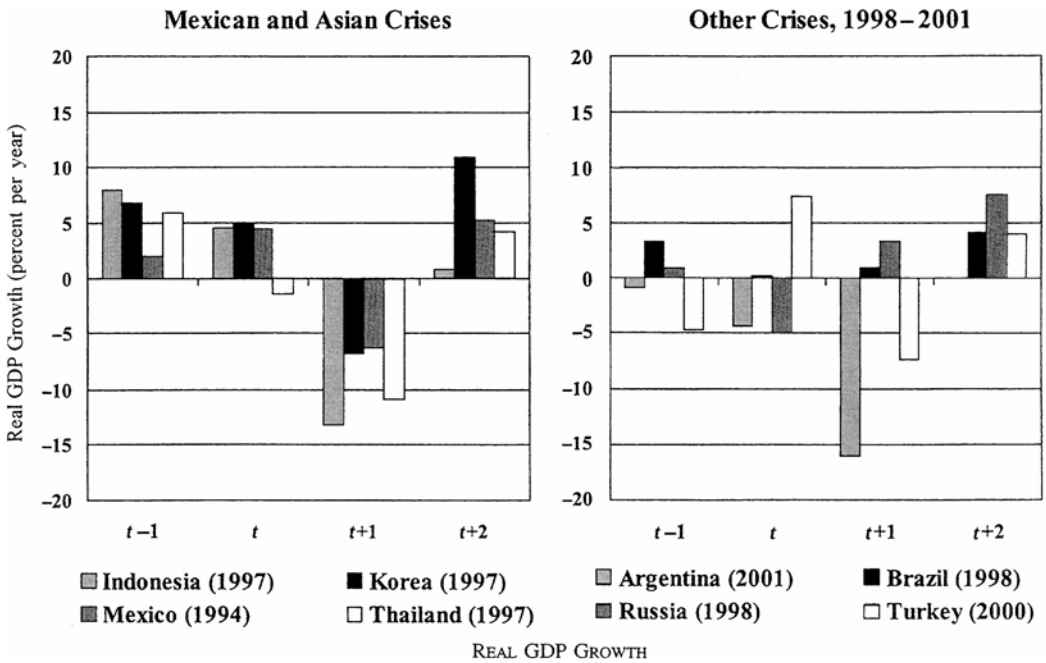


FIGURE 16-2. The Effect of the Financial Crises on Asian, Latino, Russian, and Turkish Real GDP Growth. *Source:* Fischer (2003:16), citing IMF, *World Economic Outlook*.

> successful they are likely to be.... People know something about how to ensure that the very poor are spared by the adjustment effort. In financial terms, it might not cost very much. Why? Because if you look at the share of the poorest groups in the distribution of these [adjusting] countries income, it is a trifling amount.... Unfortunately it is generally "everyone else," and not the poverty groups, that is represented in government. (quoted in Grant 1989:18–20)

Paul Mosley, Jane Harrigan, and John Toye (1991:Vol. 1, 54) observe that statements such as this by Camdessus "almost certainly exaggerate the extent to which the Fund at the operational level has moved or will move away from this traditional brief," that is the required internal changes for restoration of a sustainable macroeconomic recovery. Indeed, the IMF (and World Bank) stress income distribution and basic needs in their publications but have few systematic studies of the effects of adjustment on poverty and income inequality and few programs to ensure that adjusting countries protect the income and social services of the poor. Bank and Fund adjustment programs may need to support income transfers for the poor, as most LDCs (except for upper-middle-income countries such as Brazil and Turkey) lack the resources to support these transfers. For example, in the poorest African countries, where the majority of the population lives close to subsistence, welfare payments to bring the population above the poverty line would undermine work incentives and be prohibitively expensive. The World Bank's Social Dimensions of Adjustment Projects (SDA), discussed in Chapter 6, is a step toward compensating the poor for losses from adjustment programs (World Bank 2003f:8).

Debt Indicators

The **debt-service ratio** is the interest and principal payments due in a given year on long-term debt divided by that year's exports of goods and services. This ratio for LDCs increased from 9 percent in 1970 to 13 percent in 1979 to 18 percent in 1983 to 20 percent in 1986 to 23 percent in 1988 and 21 percent in 1989, before falling to 19 percent for each of the years, 1990 to 1993, and 18 percent in 2001 and 2002. The fall in the ratio from the late 1980s to the 1990s was a result of a slight shift from debt to portfolio investment financing, In 2001, LDC debt-service ratios were 33 percent in Latin America and the Caribbean, 18 percent in East and Central Europe and Central Asia, 12 percent in East Asia, Southeast Asia, and the Pacific, 12 percent in South Asia, 12 percent in sub-Saharan Africa, and 10 percent in the Middle East and North Africa (World Bank 2002a:222–249; World Bank 2003f:95–103).

The debt-service ratio for severely indebted middle-income countries was 70 percent, with an average ratio, 1999–2001, of 81 percent in Brazil, 67 percent in Argentina, and 50 percent in Lebanon. These percentages mean that at least half of annual export revenues must be devoted to paying interest and principle on debt, an unsustainable level. Not surprisingly, Argentina had to default and reschedule debt in 2001–03. Debt-service ratio was 19 percent in severely indebted low-income countries, 12 percent in moderately indebted low-income countries, 16 percent in moderately indebted middle-income countries, and 13 percent for lesser indebted LDCs (World Bank 2002e:222–245), lower than Brazil and Argentina because of less access to credit. The severely indebted low-income countries' and sub-Saharan ratios would have been higher except for the HIPC initiative at the millennium.

Indeed, debt-service ratios in sub-Saharan Africa during the 1980s and 1990s reflect substantial default and debt rescheduling and forgiveness. For example, in 1990, whereas Latin America's *actual* debt-service ratio, 27 percent, exceeded the sub-Sahara's 24 percent, the sub-Sahara's *scheduled* debt payments percentage, 66 percent, was more than twice Latin America's 30 percent (World Bank 1993g:Vol. 1, 164–209; Nafziger 1993:16–17).

Another indicator of LDC debt burden, debt as a percentage of GNI, increased from 12 percent in 1970 to 24 percent in 1980 to 33 percent in 1984 to 37–40 percent from 1986 to 2001 debt/GNI was 71 percent in sub-Saharan Africa, 49 percent in Eastern Europe and Central Asia, 43 percent in East Asia, 33 percent Middle East, 29 percent in Latin America, and 24 percent in South Asia in 2001. When classified by external indebtedness and income levels, debt/GNI was 100 percent in severely indebted low-income countries, 79 percent in moderately indebted low-income countries, 58 percent in moderately indebted middle-income countries, and 51 percent in severely indebted middle-income countries in 2000 (World Bank 2000a:222; IMF 1988d:122–32; Sachs 1988:17–26; World Bank 1988i:258–59; World Bank 1993g:Vol. 1, 33, 79–81, 170). (Countries are classified as severely, moderately, or less indebted countries on the basis of ratios of the present value of external debt to GNP and the present value of external debt to exports.)

TABLE 16-2. Global Real GDP Growth, 1981–2003 (GDP in 1995 prices and exchange rates; average annual growth in percent)

	1981–1990	1991–2000	2001–2003[a]
Severely indebted LDCs	1.5	3.2	1.0
Moderately indebted LDCs	2.6	0.9	2.4
Less indebted LDCs	3.4	4.7	4.9
Developing countries	2.6	3.3	3.3
Middle income	2.3	3.3	3.1
Low income	4.2	3.1	4.3
High income	3.1	2.5	3.7

[a] Estimated.

Source: World Bank 2003h:187.

Net Transfers

Net transfers are net international resource flows (investment, loans, and grants) minus net international interest payments and profit remittances. As a result of substantial debt servicing, net transfers were negative from Latin America from 1986 to 1990 and from developing countries generally from 1986 to 1988.

Because the lion's share of the poorest LDCs has been in sub-Saharan Africa, the majority of its net resources flows were concessional from 1984 through 2000, but not thereafter. This concessional aid contributed to positive net transfers in the sub-Sahara every year from 1980 to 2000.

Still, the IMF received net transfers from sub-Saharan Africa, 1983 to 1993, as repayment obligations exceeded new loans, even though the Fund introduced concessional adjustment facilities in the late 1980s. During the same period, however, net transfers from the World Bank (including the International Development Association concessional window) to the sub-Sahara was large and positive every year, thus partially offsetting the Fund's net transfer *from* the sub-Sahara. The World Bank's aversion to negative net transfers to the most debt-distressed world region may be deliberate, even though the Bank refuses to confirm the policy, perhaps for fear of establishing a precedent (World Bank 1993g:Vol. 1, 171–232; Nafziger 1993:34, 211).

Major LDC Debtors

Who have been the major LDC debtors? In 2001, the leaders were Brazil ($226 billion), China ($170 billion), Mexico ($158 billion), Russia ($153 billion), Argentina ($137 billion), Indonesia ($136), Turkey ($136 billion), India ($97 billion), and Thailand ($67 billion). Except for China and India, who did not liberalize their capital markets, all have suffered from major financial and currency crises during the mid- to late 1990s. The 23 countries indicated in Table 16-3 accounted for 65 percent of total LDC debt. Yet none of these countries is least developed. Indeed,

TABLE 16-3. Total External Public Debt (EDT) by Country – Less-Developed Countries, 1995–2001 ($ billions) ($10 billion or more in 2001, ranked by 2001 debt)

Country	1980	1985	1990	1995	1998	2001
Brazil	71	106	116	160	241	226
China	5	17	53	118	144	170
Mexico	57	97	106	167	160	158
Russian Federation	n.a.	n.a.	n.a.	122	178	153
Argentina	27	51	62	99	142	137
Indonesia	21	41	69	124	151	136
Turkey	19	26	49	74	97	115
India	21	41	69	94	98	97
Thailand	8	18	28	100	105	67
Poland	n.a.	33	49	44	56	62
Philippines	17	27	30	38	48	52
Malaysia	7	20	16	34	42	43
Chile	12	20	19	22	30	38
Colombia	7	14	17	25	33	37
Venezuela, R.B. de	29	35	33	36	37	35
Pakistan	10	13	21	30	32	32
Hungary	10	14	21	32	28	30
Egypt, Arab Rep. of	21	42	40	33	32	29
South Africa	n.a.	n.a.	n.a.	25	25	24
Algeria	19	18	28	33	31	23
Czech Rep.	n.a.	n.a.	n.a.	16	24	22
Lebanon	n.a.	n.a.	n.a.	3	7	12
Bulgaria	n.a.	4	11	10	10	10

Sources: World Bank 1993g:Vol. 1, 76–78; World Bank 1993g:Vol 2; World Bank 1990g:Vol. 1; World Bank 1990g:Vol. 2; World Bank 2003e:221.

middle-income countries accounted for 79 percent of the $2.2 trillion outstanding debt of LDCs in 2001. Only Indonesia and middle-income Argentina, Brazil, and Lebanon are classified as severely indebted. Severely indebted low-income countries such as the Democratic Republic of Congo, Cote d'Ivoire, Ethiopia, Nigeria, and Sierra Leone, which were not beneficiaries of Jubilee 2000 write-downs and concessional funds, have debt burdens more difficult to bear than the majority of those listed in Table 16-3.

Between January 1980 and December 2002, 78 LDCs (including transitional economies) renegotiated their foreign debts through multilateral agreements with official creditor groups (the **Paris Club**) or with commercial banks (under **London Club** auspices), lengthening or modifying repayment terms. These countries included most sub-Saharan countries, and the countries listed in Table 16-3, except for China, India, Malaysia, Thailand, Colombia, Hungary, South Africa, and Lebanon (World Bank 1993g:Vol. 1, 94–111; World Bank 2003e:142–155).

Yet, ironically for some countries, a high rank among LDC debtors indicated a high credit rating among commercial banks. South Korea, which received substantial overseas development assistance until it graduated to high-income status in 1994 and borrowed at submarket interest rates showed that heavy borrowing can be serviced as long as exports, GNP, and debt-servicing capacity grow rapidly (Demirguc-Kunt and Detragiache 1994:261–285). Even after Korea suffered from the contagion of the 1997 Asian crisis, the U.S. Treasury and the IMF agreed to a Christmas Day rescue, persuading creditors (commercial banks) to roll over the debt of Korea, who international financial magnates decided was too big to fail (Bluestein 2001:175–205). Indeed, Korea's debt-service ratio was only 7 percent, compared to the following for slow growers: 38 percent for Bolivia, 22 percent for Ecuador,19 percent for Ethiopia, 14 percent for Honduras, 35 percent for Kazakhstan, 23 percent for Mauritania, 37 percent for Nicaragua, 23 percent for Peru, and 25 percent for Vietnam (World Bank 1993g:Vol. 1, 234–237; World Bank 2003e:232–234). A large debt need not be a problem so long as foreign creditors believe an economy can roll over the debt or borrow enough to cover debt service and imports.

Although no leading debtors were from sub-Saharan Africa, its external debt ($209 billion, comparable to Brazil's 2001 figure) was probably as burdensome as any other world region, at least for those countries not receiving HIPC debt reductions. From 1980 through 2002, more than three-fourths of the 45 countries in the IMF African Department negotiated debt relief agreements with creditors (World Bank 2003e:145–153). From the 1970s to late 1990s, rulers of Nigeria and Congo – Kinshasa squandered their loan funds, sometimes expanding patronage for intermediaries and contractors so rapidly that they lost track of millions of dollars borrowed from abroad. During Nigeria's second republic (civilian government), 1979 to 1983, the ports sometimes lacked the capacity for imports such as cement going to government agencies controlled by politicians distributing benefits to clients. Compared to Asian–Latin debtors, the two African countries have poorer credit ratings among commercial banks because of poor national economic management, as reflected in previous balance of payments crises, and a slow growth in output and exports.

Financial and Currency Crises

As pointed out in this chapter's introduction, the extraordinary cross-border capital movements benefited the long-term growth of recipients of inflows but, because of the potential reverse outflows, increased their vulnerability to financial and currency crises. The Asian, Latino, and Russian crises in the 1990s and early years of the 21st century were major example of financial and currency crises; Chapter 17 discusses the Latino and Russian crises, which introduce issues related to currency regimes and exchange rates.

In Chapter 14, we indicated that financial markets channel funds to those with productive investment opportunities poorly when banks have a high percentage of bad (nonperforming) loans, bad credit risks are disproportionately eager to take out loans, loan officers lack information in assessing expanded lending, banks bear most

of the loss when the project of the borrowers fail, uncertainty about bank failure and government policy increases, borrowers' collateral falls from currency devaluation, and interest rates increase sharply. These problems bring about asymmetries or disparities in information in which lenders have poorer information than borrowers about the potential returns and risk associated with investment projects. These asymmetries or disparities were present in the crises of the 1990s, when partially informed lenders steered away from making loans at higher interest rates, because they had inadequate information about borrower quality and may have feared that those willing to borrow at high interest were more likely not to pay back the loan. Screening was imperfect, especially during liberalization with new banks or with old banks formerly dependent on known state enterprises or members of the same *keiretsu*-like conglomerate expanding to new borrowers. Banks lack the expertise to evaluate risk, whereas weak bank supervision contributes to a failure to screen and monitor new loans enough (Mishkin 1999:11–19).

Jong-Il You (2002:216) charges the IMF with contradictory signals, supporting

> capital account liberalization [that] expos[es] a country to the ebbs and flows of capital that are regulated by the judgement and opinions of international bankers and fund managers.... Having helped generate the financial crises by urging capital account liberalization in developing and transition economies, the Fund took on the role of firefighters, enlisting the Bank for a supporting role.... [T]he patent failure of the Fund's initial rescue operations in the wake of the Asian financial crisis underscored the fact that it was ill-equipped to deal with this new form of crisis.

Initial conditions in the year before the crises in Mexico in 1994 and East Asia in Thailand, Indonesia, Malaysia, the Philippines, and Korea in 1997 indicate that capital inflows/GDP, bank nonperforming loan ratios, and current account deficits were high; credit growth was fast; and (except for Korea) the domestic currency, set at a constant nominal rate for several years, had experienced a real appreciation[4] (that is, adjusted for inflation, the value of the domestic currency had increased relative to foreign currencies; Chapter 17 discusses real appreciation in more detail). Several other potential culprits – large fiscal deficits, inflation, and the money supply (here currency, transactions deposits, and near money) – were not factors in the crises (Mishkin 1999:10–12).

Manuel Montes and Vladimir Popov (1999:91–100) argue that successful globalizers take risks in internationalizing their capital markets. They suggest flexible exchange rates (see Chapter 17), **hedging** on the forward market[5] to fix rates for converting to foreign currency, and capital controls, if necessary, to prevent external pressures from increasing interest rates that contribute to domestic macroeconomic contraction.

[4] Rodrik and Velasco (1999) find that countries with short-term liabilities to foreign banks in excess of foreign reserves were three times as likely to have a sudden capital outflow, and thus a financial crisis.

[5] Canales-Kriljenko (2004:5) contends that LDC foreign exchange markets "are predominantly spot markets, [with] forward markets undeveloped," thus limiting forward hedging opportunities.

Indeed, in 1998, two prominent trade economists endorsed Malaysian capital controls, on the heels of recommendations that liberalizing capital accounts be a part of IMF articles and amid Malaysian Prime Minister Mahathir Mohammad's jailing of Finance Minister Anwar Ibrahim on what Westerners considered trumped-up charges. The economists Paul Krugman and Jagdish Bhagwati (1998:7–12) came out in support of capital controls, followed by Mahathir's announcement of these controls days later (Krugman 1999:142–146). These controls on exchange convertibility by domestic residents enabled Malaysia to attain monetary independence to expand monetary policies to increase aggregate demand, income, and employment without increasing vulnerability to capital outflows. Mahathir's decision was vindicated by Malaysia's recovery during the next year that was faster, whereas real wages and employment had smaller declines, than others hurt by the Asian crisis. Within a year, after Asia's capital accounts were stabilizing, Mahathir restored capital convertibility (Eichengreen and Leblang 2003; Kaplan and Rodrik 2001; Komo 2001). Not surprisingly, however, capital controls and the firing of Anwar also "provided a screen behind which [political cronies and] favored firms could be supported" (Johnson and Mitton 2001).

If controls on capital outflows are too blunt an instrument, what about disincentives for capital inflows? After massive inflows, Chile required foreign portfolio capital inflows in 1978–82 and 1991–98 (except trade credits) to deposit funds without interest at the central bank. The first time Chile prohibited inflows with maturities below two years and set reserve requirements from 10 to 25 percent for up to five and one-half years. These controls reduced short-term inflows, changing the composition of capital inflows toward longer-term capital, and allowed the central bank to raise interest rates as an anti-inflationary policy. To be sure, the private sector found ways to avoid controls, for example, by mislabeling portfolio inflows as trade credits or support for foreign direct investment (Edwards 1999:71–78). Still, taxing inflows may be effective for a short time and are less objectionable than restricting capital outflows. Moreover, as Chapter 17 argues, exchange-rate flexibility combined with inflation targeting may be a preferable alternative.

World Bank and IMF Lending and Adjustment Programs

Throughout most of the post–World War II period, the World Bank emphasized development lending to LDCs, whereas the IMF lent resources to help DCs and LDCs cope with balance of payments crises. In the late 1970s, 1980s, and 1990s, LDCs with chronic external deficits and debt overhang whose creditors failed to reschedule debt required economic adjustment (structural or sectoral adjustment, macroeconomic stabilization, or economic reform), imposed domestically or (usually) by the World Bank or IMF. In 1979, World Bank introduced **structural adjustment loans (SALs)** and soon thereafter **sectoral adjustment loans (SECALs)**. SECALs emphasized reforms in trade, agriculture, industry, public enterprise, finance, energy, education, or other sectors. SALs were no longer tied to specific projects, but to support the balance of payments through 15–20 year loans, with 3–5 years' grace, and interest

rates only 0.5 percent above the Bank's borrowing costs except for a front-end fee on new commitments. Structural adjustment policies emphasized growth and improved allocative efficiency as well as controlling domestic demand and improving the current account (Khan 1987:26–27; Nafziger 1993:xxi–xxii).

In the 1980s and 1990s, the Bank led donor coordination, increasing the power of external leverage. Although IMF direct credits to LDCs fell in the mid-1980s, the IMF retained substantial influence because of IMF–World Bank cooperation and a required IMF "seal of approval" for virtually all commercial bank, bilateral, and multilateral aid and loans. In 1986–87, the IMF used trust funds and funds from surplus DC countries for SALs to LDCs (especially in Africa) experiencing unanticipated external shocks (Feinberg 1986:14–18).

Chapter 19 analyzes World Bank and IMF adjustment policies further.

Fundamentalists versus the Columbia School (Stiglitz–Sachs)[6]

What are the origins of the Asian crisis, 1997–99? Fundamentalists, such as the Institute for International Economics' (IIE's) Morris Goldstein (1998) see the crisis resulting from the following: (1) financial sector weakness, including inadequate supervision (2) high bad-debt ratios, (3) large current-account deficits, (4) fixed exchange rates, (5) overvalued currencies, (6) contagion of financial disturbances causing portfolio investors to reassess Asian investments, (7) increased risky behavior, including failure to hedge future transactions, by bankers and international investors, and (7) moral hazard from previous international bailouts, as in Mexico in 1994. The overextension of domestic credit by Asian banks based on excessive foreign borrowing at short maturities contributed to the panic of both domestic bankers and international investors. Other fundamentalists include the IIE's Marcus Noland et al. (1998), U.S. Secretary of Treasury Lawrence Summers, 1999–2001 (Harvard's president, 2001–), and the IMF, including Harvard's Kenneth Rogoff, the IMF's Director of Research, 2001–03.

Joseph Stiglitz and Jeffrey Sachs agree with much of the fundamentalists' analysis of the causes of the crisis but differ on the prescription. Fundamentalists want the IMF to lend to crisis-stricken countries on condition that they undertake fundamental structural reforms in banking. Stiglitz, however, thinks it is unrealistic for the IMF to loan short-term, expecting reforms that can only be attained in the middle- to long-run. For an LDC to establish the legal and institutional preconditions for effective banking supervision, licensing, and regulation and operational independence takes time and resources.

Fundamentalists believe that the herd[7] behavior of Western portfolio investors, such as pension and mutual funds, transmitted the crisis from one Asian country

[6] In 1997, Stiglitz was at the World Bank and Sachs at Harvard. Both men were at Columbia University in 2002–04.

[7] The "irrational exuberance" from herding ensues from investors choosing assets others think are valuable. This is analogous, Keynes explains (1936:156), to choosing a beauty contest winner in which the prize is "awarded to the competitor whose choice most nearly corresponds to the average preferences

to another, and then to Russia and Latin America. Stiglitz (2002a:199), by contrast, accepts a Keynesian explanation for contagion of the crisis, viz., that the "belt tightening" imposed by the IMF reduced incomes and imports that successively weakened neighboring countries, and through the reduced demand for oil, spread to Russia.

For Jong-Il You (2002:216), contagion was not a result of fundamentals but of the IMF's failure.

> Having helped generate the financial crises by urging capital account liberalization in developing and transition economies, the Fund took on the role of firefighters, enlisting the [World] Bank for a supporting role. The quick recoveries of Mexico and Asia . . . are [not] vindication [but] may simply have been a consequence of the fact that the crises were mainly panic-driven. In fact, the patent failure of the Fund's initial rescue operations in the wake of the Asian financial crisis underscored the fact that it was ill-equipped to deal with this new form of crisis (ibid.).

Stiglitz (2002a:12–15) believes that the IMF, as initially conceived, was to undertake global collective action to ameliorate market failure. Its major task should be to support global economic stability by spurring growth and reducing unemployment. The IMF, according to Stiglitz, is a public institution provided with funds from taxpayers around the world. As such, the IMF should report to the citizens who finance it and not just finance ministries and central banks. To serve these citizens, Stiglitz opposes the conditions that the IMF sets for low-income loan recipients, the draconian monetary and fiscal policies (see Chapter 14) and adherence to free markets that were a part of the Reagan–Thatcher ideology.

Stiglitz regrets changes in the Bretton Woods' institutions, the IMF and World Bank in the early 1980s. According to him, as part of the liberal counterrevolution, the IMF shifted from a Keynesian emphasis on expanding employment and combating market failure to adopting "a new 'Washington Consensus'" (see Chapter 5). He also regrets a purge at the World Bank at the same time that shifted its emphasis to structural adjustment loans to LDCs dependent on IMF approval and IMF-imposed conditions. Stiglitz (2002a:15) also supports the Krugman–Bhagwati view on capital controls, denouncing IMF policies of "premature capital market liberalization [which has] contributed to global instability."

Stiglitz (2002a:198) criticizes the IMF for its lack of exchange rate flexibility, undertaking "massive interventions [of] billions of dollars . . . trying to sustain the exchange rate of Brazil and Russia." He understands why IMF strategies are "greeted with such hostility. The billions of dollars which it provides are used to maintain exchange rates at unsustainable levels for a short period, during which the foreigners and the rich are able to get their money out of the country at more favorable terms. . . . The billions too are often used to pay back foreign creditors even when the debt was private. What had been private liabilities were in effect in many instances nationalized" (ibid., p. 209). Essentially, Stiglitz (2000a:209–211) feels that

of the competitors as a whole; so that each competitor has to pick, not those faces which he himself finds prettiest, but those which he thinks likeliest to catch the fancy of other competitors."

the IMF was more concerned about the views of the IMF, the U.S. Treasury, and the world financial community than East Asian workers and taxpayers. We return to trade policy in Chapter 17.

Changing the IMF and the International Financial Architecture

How can the world financial community contain and resolve these widespread financial, capital, and macroeconomic crises in LDCs? We have discussed proposals to control damaging capital movements. This section examines ways to change the IMF and world economic governance, that is, the international financial architecture. After that, we discuss piecemeal efforts or plans to resolve the debt crisis. Then in Chapter 17 we analyze how trade and exchange rate policies can diminish the frequency and intensity of these crises.

Sometime World Bank economist Percy Mistry (1999:93–116) contends that the IMF exacerbated what should have been a mild currency shock into a deeper cataclysm by maintaining a monopoly over crisis management. Developing countries have few institutions besides the IMF to rely on during crisis; ironically, only DCs have separate international arrangements, such as the Group of Seven, European Monetary System and European Monetary Union, and Bank for International Settlement, for support. Asia (and perhaps other developing countries) need regional financial institutions, such as a bank for international settlements, a regional monetary facility for mutual assistance and regional intervention support, a monetary fund under Asian-Pacific Economic Cooperation (APEC) (a forum for spurring economic growth, cooperation, trade and investment), standby funding arrangements to support IMF programs (under APEC), regional agreements to borrow, and enhanced regional surveillance arrangements (among the central banks of ASEAN, perhaps also with Japan and China). DCs have these types of arrangements; why shouldn't Asia? Mistry asks.

For Deepak Nayyar (2002:367–368), the major missing institution is one for global macroeconomic management. In 1944, at the meeting that established the IMF, John Maynard Keynes proposed an International Clearing Union (ICU) in which all members would accept the debt obligation of the ICU's banker. In contrast to the competing U.S. proposal, Keynes, the U.K.'s negotiator, wanted IMF member countries to manage demand to achieve full employment and rapid growth. To achieve this, the ICU or IMF should put the burden for correcting external imbalances on surplus, not deficit, countries. Because of trade interactions between countries, Stiglitz (2002c:240–242), a contributor to Nayyar's volume, sees global collective action to expand demand and employment as the preeminent global public good. "Today," Stiglitz maintains, "Keynes must be turning over in his grave" with the major IMF thrust to cut back fiscal spending, increase taxes, and reduce trade deficits of poor countries (ibid., p. 242). Moreover, he argues, "it is much harder for poor countries to bear the risks of exchange rate and interest rate fluctuations than it is for rich ones. . . . Debt burdens that look moderate become unbearable after big devaluations." After pointing out that "This year Moldova, already desperately poor, will

spend about 75 per cent of its government's income on debt repayments," he asks for international economic institutions to undertake the role of providing a mechanism for distributing risk (Stiglitz 2000a). Nayyar (2002:368) thinks that the explosive growth in international finance necessitates global macroeconomics, although he and others pressing for change despair of finding an "institutional framework for this task, which is left almost entirely to the market."

The International Financial Institution Advisory Commission (2000), appointed by the U.S. Congress and chaired by Allan H. Meltzer, recommended that (1) the IMF, World Bank, and regional development banks write off all debts of the highly indebted poor countries (HIPCs) that implement effective development policies; (2) access to IMF credit be automatic and immediate to countries meeting a priori requirements without additional conditions or negotiations; (3) the World Bank and regional development banks should concentrate on poverty reduction; and (4) because the world was on a flexible exchange system, the IMF should only loan for short-term liquidity, until an equilibrium exchange rate is restored, and not for poverty reduction, long-term development assistance, or long-term structural reform, for which the IMF is ill-suited. In addition, the Meltzer report indicated that LDCs should not adopt pegged exchange rates.

Most critics would welcome (1). However, writing off all HIPC debts requires additional appropriation from the U.S. Congress for IMF, World Bank (that is, International Development Association), and regional bank concessional aid. Other donors' aid for debt relief waits for a U.S. initiative. On (2), as indicated in Chapter 15, no country undertook IMF prior surveillance for Contingent Credit Lines (CCL), 1999–2003, fearing the label of being vulnerable to crisis. Many may have feared that IMF prescreening before the crisis would be more rigorous than the assessment at the time of crisis. On (3), the World Bank's and regional banks' moneys are revolving funds, based on recipients paying back loans. Antipoverty projects rarely pay off for multilateral banks, which need to lend at bankers' standards to maintain funds. To enhance funds for poverty reduction requires additional concessional funds by the United States and other DCs. The George Bush administration learned this when it followed through on Meltzer Commission recommendations by calling on the World Bank in 2001 to increase its share of grants to 50 percent of social sector aid to LDCs. Other OECD countries, fearing an erosion of World Bank's resources, opposed Bush's effort without major concessional aid that the United States was not prepared to give. Finally, on (4): for many LDCs, attaining an exchange rate that eliminates chronic deficits is much more difficult than international trade theory indicates, especially with potential capital flight (see earlier and Chapter 17).

Given the resistance of central bankers and treasury officials to radical change and the vested interest of the IMF in the status quo, Barry Eichengreen's and most other economists' proposals have been for marginal changes in the system. Eichengreen, from the University of California-Berkeley, favors Chilean-type taxes and controls on short-term capital inflows and encourages exchange-rate flexibility (see Chapter 17). He also would require banks borrowing short-term from abroad and lending long-term domestically to hedge on the forward market, and would shift IMF conditions

for the loan from changes in monetary and fiscal policies to improvement in banking regulation, supervision, monitoring, and disclosure; more emphasis on securities (to be better regulated) rather than bank intermediation; protection against a small minority preventing restructuring of international bonds; "bailing in" (expanding losses to) private foreign investors and banks; corporate bankruptcy standards; and information transparency. Eichengreen's proposal would reduce bad loans and marginally improve the position of LDC debtors. The next few sections discuss marginal changes recommended by the IMF economists Stanley Fischer and Anne Krueger.

IMF Failed Proposals to Reduce Financial Crises

Stanley Fischer, as IMF Deputy Managing Director, in discussing "On the Need for an International Lender of Last Resort" (1999:85–104), asks whether the IMF should play that lending role in financial crises similar to those in Asia and Mexico. His standard is that of the 19th-century English economist Walter Bagehot: "In a crisis, the lender of last resort should lend freely, at a penalty rate, on the basis of collateral that is marketable in the ordinary course of business when there is no panic." This lender's role is to offer an assurance of credit, given under certain limited conditions, which will stop a financial panic from spreading – or better still, stop it from even getting started" (ibid., p. 86). But this lender, to avoid market participants from taking excessive risks, should maintain *constructive ambiguity* (italics in the original) about when it will seek to stabilize a crisis (ibid., p. 91).

Fischer thinks that the IMF should be able to reduce financial crises, even though international capital markets cannot operate as well as U.S. domestic capital markets. According to Fischer, the IMF does at times play the role of a lender of last resort but needs to be improved to reduce the frequency and intensity of LDC financial crises. He proposes precautionary lines of credit from private creditors to LDCs with sound policies (Fischer 1999:86–99). This proposal became the IMF's Contingent Credit Lines (CCL), which, however, was discontinued in 2003 from LDCs' fear of being labeled as precrisis (Chapter 15).

Another suggestion by Fischer (1999:99) was to allow a stay of payments during crisis, a scaled-down version of Jeffrey Sachs's bankruptcy proposal and a precursor of Anne Krueger's proposal for sovereign debt restructuring in 2002, which was rejected by IMF members for the next two years. We discuss Sachs's approach to canceling debt and the advantages of concerted action before examining Krueger's approach.

Debt Cancellation[8]

For Sachs, sometime advisor to Latin American, Eastern European, and African economies, LDCs facing a substantial debt overhang might be better off defaulting

[8] The first three paragraphs of this section are based on Sachs (1989:279); Devlin (1989:233); Devlin (1987:91–93); Diaz-Alejandro (1984:382); Cline (1989:45); Greene (1991).

on a portion of its debt than undertaking austere domestic adjustment or timely debt-servicing. About 20 countries undertook such unilateral action in the 1980s. Many LDC leaders felt there was no IMF adjustment program for full debt-servicing that makes the country better off than forgoing the program by partially suspending debt payments.[9] Any IMF program may be too tight relative to other options for the debtor government.

The precedent for defaulting on debt is the 1930s. Countries that stopped paying their debt service recovered from the Great Depression more quickly than countries that resisted default and had virtually identical access to post–World War II capital markets.

However, country default in the 1990s is more costly than it was in the 1930s, when debt was held among scattered bondholders ranging from retired individuals to large corporations, so that creditor collusion was virtually impossible. Currently, debt is, in contrast, largely held by an oligopoly of international commercial banks, which hold the lion's share of LDC international reserves, dispense LDC credit, maintain close communication with each other, and coordinate action with the IMF and DC central banks. Moreover, contemporary LDCs face a relatively prosperous, not a depressed and divided, North. Furthermore, today's bank cartel insists on a case-by-case approach, thus increasing their bargaining power vis-à-vis debtors.

Yet, the debtor may be able to avoid sanctions when the lender agrees to debt reduction or cancellation or the conversion of loans to grants. Sachs (1989a:279) maintains that the best strategy for the IMF (or other international agencies) would be a program based on partial and explicit debt relief, which can serve as a carrot for political turnaround. William R. Cline (1989:45) doubts, however, that these agencies can use debt relief as a "policy bribe" in exchange for economic reform. Indeed, creditor sanctions on debtor behavior are very ineffective. The IMF's Joshua Greene (1991) admitted that assessing African debt for rescheduling is so hopeless that it would be simpler to forgive the entire debt.

Should DCs or multilateral agencies use concessional aid for debt relief or cancellation? Most large debtors are middle-income countries, and *not* among the poorest states. Many of the poorest countries adversely affected by external shock or growth deceleration, including Bangladesh, and most low-income sub-Saharan Africa, borrowed less by choice than necessity (low creditworthiness) (Buiter and Srinivasan 1987:414). Thus, the U.N. Conference on Trade and Development (1978) emphasized widespread debt renegotiation to cancel or reschedule debts of least-developed (largely overlapping with IDA-eligible) countries.

From 1978 through 1990, 14 Organization for Economic Cooperation and Development (OECD) countries canceled more than $2 billion of concessional debt (mostly under Paris Club auspices), about one-fifth of concessional loans to IDA-eligible

[9] Ndikumana and Boyce (1998:2–47) argue that successor governments, such as in Congo–Kinshasa, should be able to repudiate their liabilities for prior predatory regimes' debts (for example, the spiriting by Mobutu of official borrowed capital for his personal accounts overseas) on the basis of creditor complicity in odious debt.

countries in sub-Saharan Africa. Sweden, Canada, the Netherlands, Belgium, the United Kingdom, Germany, Denmark, Norway, and Finland were major contributors to debt forgiveness to the sub-Sahara. OECD nations also gave recipients concessional aid to buy commercial bank debt instruments at heavily discounted prices (Humphreys and Underwood 1989:45; World Bank 1989g:Vol. 1, 24, 44). In addition, the highly indebted poor countries' (HIPCs) millennium initiative by the IMF, World Bank, and DC donors wrote off more than $50 billion from 2000 through February 2004 (IMF and IDA 2004:5).

Concerted Action

To understand IMF Deputy Managing Director Anne Krueger's proposal for sovereign debt restructuring, we need to discuss the advantages of concerted action or collective action clauses.

Debt reduction is the restructuring of debt to reduce expected present discounted value of the debtor's contractual obligations. The general commercial debt writeoffs, write-downs, and reductions (encompassing other than the largest debtors) envisioned under the 1989 Brady Plan, still in effect in 2004, failed because of the lack of multilateral coordination. Bilateral arrangements are subject to free-rider problems, where nonparticipating banks benefit from increased creditworthiness and value of debt holdings. Banks are willing to reduce LDC debt, but only if their competitors do likewise (Sachs 1989b:87–104).

The solution lies in concerted debt reduction, in which all banks owed a debt participate jointly on a prorated basis. For debt relief, just as in U.S. bankruptcy, settlements (under Chapter 11 of the Bankruptcy Reform Act of 1978), concerted efforts are more effective than individual deals by creditors with debtors, and rebuilding of debtor productive capacity more effective than legalistic solutions (Sachs 1989b:239–240; Dell 1991:139).

Debt reduction can improve creditor welfare, as a large debt overhang can worsen debtor economic performance, and diminish the creditor's expected returns. Just as in bankruptcy, decentralized market processes rarely result in efficient debt reduction, because each individual creditor is motivated to press for full payment on its claims, even if collective creditor interests are served by reducing the debt burden. The bankruptcy settlement cuts through the problem of inherent collective inaction and enforces a concerted settlement on creditors. Bankruptcy proceedings (under U.S. law) force individual creditors to give up some legal claims, reducing the contractual obligations of debtors, and thus preserving debtor capacity to function effectively and thereby service as much of the debt as possible. The debt overhang prevents countries from returning to the loan market; the most effective way to revive lending is to reduce the debtor's debt-servicing burden. We should apply the lesson of bankruptcy to sovereign debt overhang, even though debtor LDCs face a liquidity rather than a solvency problem. A major objective in debt reorganization is to reverse investment and productivity declines resulting from poor creditworthiness. Debt reduction may be the only feasible alternative, as banks, lacking incentives, are

becoming increasingly resistant to new-money packages, and debtors lack incentives to undertake tough reforms designed to increase debt-servicing payments abroad. DCs can best support moderate political leaders by reducing debt so that debtor countries have an incentive to undergo reform and offer long-term benefits to their publics.

Before 1989, major creditors undertook insufficient joint action to attain success in debt reduction. From 1989 to 1993, to avoid damaging precedents for other LDC debtors, creditors generally worked out debt-reduction packages with selected large debtors, such as Mexico, Brazil, Venezuela, and Nigeria. After the mid- to late 1990s, with falling commercial lending, joint action was limited.

The inherent barrier to voluntary schemes with small debtors is that the nonparticipating creditor who holds on to its original claims (which will rise in value) will be better off than those participating in collective debt reduction. *Creditor participants pay the cost of debt reduction, while all creditors share the benefits*.

The IMF'S Sovereign Debt Restructuring Mechanism

Because LDCs are sovereign so that foreign creditors lack the rights they have in their own domestic courts, they must have other protections against borrower default. Thus, IMF Deputy Managing Director Anne Krueger explains (2003:70–71), to enforce debt obligations, lenders generally, as a last resort, must reduce future access to world credit markets.

Nevertheless, sometimes debt is unsustainable, meaning that, regardless of the country's efforts, debt (and debt servicing) relative to GDP will grow indefinitely. In these cases, the net present value of the country's debt is less than the face value of the debt. Debt restructuring is probably essential before the country can resume growth (Krueger 2003:71).

The keys to debt restructuring are, according to Krueger (2002),

- First, to give the debtor legal protection [a payments standstill] from creditors while negotiating;
- Second, to give the creditor assurances that the debtor will negotiate in good faith and pursue policies that protect asset values and restore growth . . . ;
- Third, to guarantee that fresh private lending would not be restructured [and]
- Finally [to] verify claims, oversee voting, and adjudicate disputes.

One way of achieving these goals, the IMF, led by Krueger, decided, was to insert collective action clauses (CACs) into new bonds and loans (Krueger 2002). Initially, however, debtors feared that CACs would brand them as vulnerable and creditors were concerned about constraints on collecting debts. But, beginning in late 2003, New York state law enabled most emerging market sovereign bonds to include CAC clauses (IMF 2004c).

CACs incorporated into bond issues after 2003 do not speak to the need for coordinating debt reduction among debts incurred before 2003. A wider Debt Reduction Consortium (DRC) could amalgamate consultative groups (CG) chaired by the World Bank, the Paris Club, London Club, and roundtables chaired by the U.N.

Development Program. Debt relief needs to shift its focus from the Paris Club to another organization, such as the CG, where debtor countries have a better opportunity to present their case and creditors a wider perspective on the debt question. An additional problem in organizing debt relief is that DC governments and commercial banks no longer have the urgency to address the LDC debt crisis, as it no longer endangers the DC banking system. Moreover, global concerted efforts proposed in the 1930s and 1990s – a special international lending facility, injections of new funds, debt buybacks, and conversions of existing assets into new assets with different contingencies – have had limited success because of disagreements about who should fund and control the administration (Eichengreen and Portes 1989:69–86; Lancaster 1991:55–56; Mistry 1991:15; Nafziger 1993:20–21, 193–195).

Resolving the Debt Crises

Although in the 1970s and early 1980s, creditors took a case-by-case approach to the debt crisis, beginning in the mid-1980s, several policy makers advocated systematic debt relief plans. We first discuss several plans that address reducing commercial debt, mostly by middle-income countries, after which we examine measures to deal with debts to bilateral or multilateral agencies, primarily by low-income countries.

As indicated, net commercial credit to LDCs continually fell in the 1980s and subsequently in the late 1990s through 2003. Yet the external debt stocks owed fell only slightly from 1999 to 2003. Both Latin American commercial debt, at levels of several hundred billion dollars yearly, and sub-Saharan debt, substantially less than a $100 billion annually, fell during this period, whereas commercial debt of East Central Europe, the former Soviet Union, and Central Asia took up some of the slack, especially after 1997. Moreover, 64 percent of 2001 LDC (76 percent of Latin American and 33 percent of sub-Saharan) debt outstanding was to private creditors (World Bank 2002e: 220–251).

Annual debt forgiveness and reduction in LDCs in the 1990s was $20 to $40 billion, of which the largest amount, sometimes as much as one-half, was Latin America, the second largest the Middle East, and the third largest sub-Saharan Africa. However, by the late 1990s and early years of the 21st century, East-Central Europe and Central Asia surpassed all other regions in benefits from debt forgiveness and reduction (World Bank 2002e:220–251).

In analyzing commercial debt, we add to issues related to debt cancellation, concerted action, and collective action clauses in newly issued debt instruments discussed above an examination of several other proposals, beginning with two plans named for American treasury secretaries, the Baker Plan (1985), which emphasized expanded lending for LDC debtors, and the Brady Plan (1989), stressing debt writeoffs and write-downs, together with debt exchanges, and the Enterprise for the Americas Initiative.

After that, we look at debt rescheduling, write-downs, and forgiveness for low-income countries, briefly examining the 1980s and early to mid-1990s before

discussing the HIPC (highly indebted poor countries) initiative by the World Bank and IMF.

BAKER PLAN

In the early 1980s, the U.S. government had no strategy besides declaring that debtors should pay the full interest due to American banks. However, by 1985, Washington had realized the limitations that the debt crisis placed on Latin American growth and on demand for U.S. exports. Peru's President Garcia's 1985 U.N. speech posing the problem as "democracy or honoring debt" forced U.S. political leaders to focus on tradeoffs. Some U.S. bankers and Treasury officials feared a debtors' cartel. In response, at the October 1985 IMF–World Bank meeting, Secretary of the Treasury James A. Baker, III, unveiled a U.S. proposal, which called for Inter-American Development Bank, IMF credits and new surveillance (the inspiration for IMF structural adjustment lending beginning in 1986), World Bank structural adjustment loans, contributions from trade surplus countries like Japan, and additional commercial bank lending, to help the highly indebted middle-income countries. Baker provided for the IMF to continue to coordinate new bank lending, but with some centralization, so as to avoid the free-rider problem, in which individual banks could benefit by new loans from other banks. Countries receiving funds were not to sacrifice growth, as the package of budget restraint, tax reform, liberalized trade and foreign investment, the privatization of some state-owned enterprises, and setting public-sector prices closer to the market would promote efficiency without making contractionary financial policy necessary. The IMF, although under pressure from the U.S. Federal Reserve Board and Treasury and a Mexican threat of debt repudiation, contributed $1.7 billion to a $12 billion "growth-oriented" package of adjustment and structural reform, which included $6 billion from commercial banks. But the Baker initiative did not address how to go from the initial lending package to subsequent inducements for voluntary capital flows. Also, the approach did not help the poorest countries (who reduced borrowing because of low creditworthiness), and its terms did not take into account past management performance. Moreover, Latin American debtors considered the new resources inadequate and asked for a lower interest rate spread over the Eurodollar London rate (or LIBOR) and a ceiling on debt service payments (Buiter and Srinivasan 1987:411–417; Ranis 1987:189–199; Helleiner 1988:30; Sachs 1988:17–26; Cline 1989b:176–186).

Brazil's moratorium on debt payments in early 1987 drove secondary market prices for debt down and restrained new-money packages. In response, in 1987, Secretary Baker called for a "menu approach," including bonds for new money and debt–equity conversion, in which bank participation was tailored to individual bank interests. A limited amount of structural reform (reduced tariffs, privatization) took place, especially in Latin America. In Latin America, those countries with larger foreign resource transfers had faster growth in the late 1980s.

The Baker Plan, which stressed saving U.S. banks at the expense of the IMF, the World Bank, multilateral banks, and Japanese creditors, was vastly underfunded. Yet the plan did, however, forestall a major writeoff of third world debts that threatened

the nine major U.S. banks in the early 1980s. Latin American debtors ceased threatening to form a cartel. This lessened the concerns of top creditor banks about LDC default and gave them time to reduce gradually their exposure to LDC borrowers. Baker also reduced the vulnerability of money-center banks by enlisting the IMF, World Bank, and DC lenders in an effort to reduce bad debts. Indeed, in the next few years these multilateral agencies and lenders strengthened their sanctions against unilateral LDC default. The insistence of the World Bank, bilateral lenders, banks, and export credit agencies on IMF approval of macroeconomic stabilization (usually involving credit and budgetary restraints) left LDC borrowers few other funding sources. Furthermore, the Baker initiative made time available for the U.S. Federal Reserve and bank regulators to support U.S. money-center banks through measures such as increased reserve requirements (Lissakers 1989:67–73; Sacks and Canavan 1989:176–186; Weeks 1989b:41–63).

Thus, by 1987, Harry Huizanga (1989:129) could say that "bank stock prices to a large extent already reflect the low quality of developing-country loans. Thus, no major U.S. bank goes under if it gets a return on its developing-country debt that is consistent with developing-country prices observed in the secondary market (Huizinga 1989:129). More important, the Baker Plan's averting a possible debtors' cartel and widespread unilateral LDC default enabled the top creditor banks to reduce their LDC-debt exposure, so they could boycott reschedulings and new-money packages and insist on LDC full servicing while no longer fearing their own collapse. Ironically, the major money-center banks' newfound immunity from LDC defaults contributed to the death of Baker's efforts to spur increased bank lending to LDCs.

BRADY PLAN

By the 1980s, commercial banks no longer deemed most balance-of-payments financing compatible with their fiduciary obligations, so net commercial credit to LDCs continually fell, becoming negative between 1983 and 1989. In March 1989, U.S. Treasury Secretary Nicholas F. Brady presented a plan for debt, debt-service reduction, and new-money packages on a voluntary and case-by-case basis, relying on World Bank, IMF, and other official support. The Brady Plan asked commercial banks to reduce their LDC exposure through voluntary debt reduction or writeoffs whereby banks exchanged LDC debt for cash or newly created bonds partly backed by the IMF or the World Bank, or debtor countries converted or bought back debt on the secondary market (Huizinga 1989:129–132). Although the IMF and World Bank were to set guidelines on debt exchanges, negotiations of transactions were to be in the marketplace, according to Brady (World Bank 1989g:Vol. 1, 24).

Debtor countries preferred debt reduction to new money, which enlarged debt and constrained growth. Debt overhang acted as a tax on investment and income increases. In the early 1980s, when financial flows dried up, many debtors needed trade surpluses to service debt.

The World Bank and IMF set aside $12 billion (one-fourth of policy-based lending) for discounted debt buybacks, with $12 billion matching funds from the Bank and $4.5 billion from the Japanese government; thus, total Brady Plan government or

multilateral resources were $28 billion, 1990 to 1992. In 1989, Mexico was the first country to benefit from the plan, receiving $3 billion from the World Bank and Inter-American Development Bank and $2 billion from the Japanese to issue conversion bonds, which could purchase debt with a $10 billion face value for a secondary market price of $5 billion (that is, 50 percent of face value) (Cline 1989a:187–191; World Bank 1989g:Vol. 1, 21). Secondary market trading increased exponentially from $65 billion in 1989 to $2.7 trillion in 1995 to $6 trillion in 1997. However, Brady bonds carry the stigma of previously rescheduled debt. So, finally market consolidation, uncertainty about future crises, and Ecuador's default on a Brady bond in 1999 adversely affected secondary market activity, reducing trading to $4.2 trillion in 1998 and less than that in 1999 (Chamberlin 1999; World Bank 2003e:53).

However, replacing commercial bank debt with World Bank/IMF funds reduces flexibility for recipients, as debt to the Bank and Fund, which require first claim on debt-servicing, cannot be rescheduled. Still, the increase of IMF quotas by 50 percent in 1990 made more short-term funds available for debt reduction (FAO 1991:6).

DC commercial banks have faced increasing constraints on lending in the 1990s, with a perception of low creditworthiness of debtor countries, difficulties of implementing reform programs, increased regulatory and competitive pressure of banks, the effect of depressed secondary market prices of LDC loans on bank share prices, the reluctance of U.S. and Japanese banks to increase exposure to highly indebted LDCs, the riskiness of new-money approaches, and the free-rider problems of banks collecting full interest due without contributing to fresh-money loans (see later). Furthermore, commercial banks concentrated loan arrangements on Brazil and Mexico rather than smaller Latin American or sub-Saharan debtors. Indeed, financing concentration increased in Latin America throughout the early 1990s and commercial lending was sparse for sub-Saharan Africa throughout most of the 1990s (World Bank 1989g:Vol. 1, 12; World Bank 1993g:Vol. 1, 170–89; UNCTAD 2003d:35).

Debt-reduction measures include the exchange of foreign debts against domestic assets (debt–equity conversions), which can contribute to accelerating inflation and higher interest rates if assets acquired by the creditor are private but guaranteed by government. The exchange of discounted foreign debt for another foreign asset requires that the new asset be more secure and that its probability of servicing be larger than that of the old debt.

Buying back a debt at a discount with foreign exchange is not feasible for most LDC debtors, who have little foreign exchange available. Few creditors have been willing to reduce interest rates on existing debt instruments. Attracting reflows of flight capital may require higher risk premiums and high real interest rates. Moreover, reflows may be put in highly liquid form rather than in investments in expanding productive capacity (Husain and Mitra 1989:199–209).

DEBT EXCHANGES

One approach, the market-based "menu" approach – buybacks, debt–equity swaps, debt exchanges, and exit bonds discussed later – allows commercial banks and debtor countries to fine-tune instruments case-by-case. However, buybacks and debt–equity

swaps actually increase banks' short-term financing requirements. Moreover, creditors have used the menu mainly for major Latin American debtors, with little application to Africa (Bouchet and Hay 1989:146–51; Husain and Underwood 1992:29; World Bank 2002e). Furthermore, as of the late 1990s, these forms of debt exchanges have been used less frequently, replaced by other forms of debt restructuring.

Debt–equity swaps. Debt–equity swaps involve an investor exchanging at the debtor country's central bank the country's debt purchased at discount in the secondary market for local currency, to be used in equity investment (Claessens and Diwan 1989:271). From 1982 to the early 1990s, the active market for the swapping or selling of commercial bank claims on LDCs grew rapidly, but declined thereafter. Usually, with a swap, a DC commercial bank (Citicorp led here) sells an outstanding loan made to a debtor-country government agency to a multinational corporation, which presents the loan paper to the debtor's central bank, which redeems all or most of the loan's face value in *domestic currency* at the market exchange rate. The investor, by acquiring equity in an LDC firm, substitutes a repayment stream depending on profitability for a fixed external obligation. In the 1990s, U.S. firms and banks made these arrangements with some Latin American countries, such as Mexico, Brazil, Argentina, Chile, and Ecuador that were experiencing depressed economic conditions. Many bankers doubt that a country that lacks foreign exchange for debt service should make exchange available for repatriating corporate income (World Bank 1989g:Vol. 1, 18; *IMF Survey*, July 11, 1988, p. 226). Rudiger Dornbusch (1990:324) even argues that the U.S. government has been "obscene in advocating debt–equity swaps and in insisting that they be part of the debt strategy." According to him, the U.S. Treasury has made these swaps a dogma, and the IMF and World Bank, against their staffs' advice, have simply caved in.

Debt buybacks. In late 1989, the World Bank created a **Debt Reduction Facility (DRF)** for **IDA-eligible countries**, countries poor enough to be eligible for International Development Association concessional lending. The DRF provides grants to eligible countries (21 Sub-Saharan African countries, a few Latin countries, and Bangladesh) of as much as $10 million to buy back commercial debt instruments. Because much of the debt of these countries has been discounted by 80 to 90 percent, a small amount of cash has substantial impact in reducing debt stocks and service. The debt facility is open to countries with a World Bank or IMF adjustment program and (in the Bank's judgment) a credible debt-management program.

Here are a few examples. Niger bought back its commercial bank debt of $108 million at 18 cents per dollar with $10 million DRF and $9.5 million from France and Switzerland in early 1991. Uganda completed a buyback of $153 million in debt obligation, 89 percent of its outstanding commercial bank debt, at 12 cents on the dollar with DRF, European Union, German, Dutch, and Swiss funds in early 1993. Bolivia eliminated most of its commercial bank debt by retiring $170 million at 16 cents per dollar with DRF, U.S. Agency for International Development, Swedish, Swiss, and Dutch funds in mid-1993. Yet creditors and donors were reluctant to

use the resources of the facility to avoid setting precedents for large debtors, such as Brazil, Mexico, Argentina, and middle-income countries where exposure is larger (U.N. 1988:45–47; Humphreys and Underwood 1989:45, 52–53, 57; World Bank 1989g1:31, 41–49; World Bank and UNDP 1989:14–16; Nafziger 1993:97–98; World Bank 1993g:Vol. 1, 38–39).

Who benefits from a self-financed debt buyback? Paul R. Krugman and Maurice Obstfeld (1994:703–704) argue that creditors gain and a heavily indebted country loses from buying back part of its own debt on the secondary market. The debtor loses even if a donor provides aid (if that aid has an opportunity cost within the debtor country) to a debtor country to buy back part of its debt. The case of Bolivia in 1988 shows how a buyback plan meant to help a debtor can degenerate into a large giveaway to creditors. In 1988 Bolivia received $34 million from donors to buy back a portion of its commercial debt. Before the buyback was planned, the market valued Bolivia's foreign debt of $757 million at 7 cents on the dollar or $53 million. After the buyback, the remaining debt sold for 12 cents on the dollar, a value on the market of $43.4 million. Bolivia's benefit from the $34 million gift was the reduction in its total expected debt payments from $53 million to $43.4 million, equal to $9.6 million. Creditors received the lion's share of the gain, $24.4 million, that is, the $34 million bought back minus the $9.6 million reduction in expected debt payments.

Debt-for-nature swaps. Although DCs contribute disproportionately to carbon dioxide, methane, and nitrous oxide emissions that exacerbate global warming (Chapter 13), LDC emissions are also a problem. LDC leaders argue that DC interest in resolving the debt problem and the environmental crisis provides an opportunity to connect the two issues. Developing countries might repay debt in local currency, with half the proceeds made available to an international environmental fund that spends to protect the local environment and the remaining local-currency payments made available for population or development projects. David Bigman (1990:33–37) suggests that G7 and other industrial countries use a tax on fossil fuels to finance the environmental fund and an environmental protection corps of young DC volunteers serving for one year.

Inevitably, growth in low-income countries will increase environmental pressures. The prevailing environmental problems are desertification (from irregular rainfall and overuse), deforestation (reduced forest and woodland cover, deteriorating soil protection, and fuelwood shortages), contamination and loss of groundwater, and urban and water pollution (especially from inadequate sewerage treatment and industrial discharges) (African Development Bank and ECA 1988:29–98).

Environmental stress increases with population growth. Reducing government expenditures to cope with the debt crisis also reduces resources, especially imports, available for accelerating economic growth, cutting environmental degradation, or slowing population growth. From 1987 to 1993, nongovernmental international environmental organizations and DC governments raised $128 million at an initial cost of $47 million (an average discount of 62 percent) to purchase debt instruments

in 31 LDCs, mostly in Latin America. For example, in 1992, an environmental organization bought $2.2 million of Brazil's commercial debt (at a 66 percent discount) to establish the Grande Sertao Verde National Park in northern Brazil (World Bank 1993g:Vol. 1, 115).

Debt-for-development swaps. Here an international agency buys LDC debt in the secondary market at substantial discount, exchanging the debt at a prearranged discount with the debtor country, which issues a bond or other financial instruments. In the early 1990s, UNICEF purchased debt to finance child development programs in Bolivia, Jamaica, Madagascar, the Philippines, and Sudan, such as health, sanitation, and primary education. Harvard University bought $5 million of Ecuadorian debt for $775,000, a discount of 84 percent, to finance for 10 years traveling expenses and stipends for 20 Ecuadorian students at Harvard and 50 Harvard students and faculty to perform research in Ecuador (World Bank 1993b:114–117).

Other debt exchanges. Other types of conversions include debt–debt conversions, in which foreign currency debt is exchanged for obligations in domestic currency, informal debt conversions by private companies and citizens, and exit bonds for creditor banks wishing to avoid future concerted lending. A debtor country can offer to settle arrears with individual banks by trading debts for long-term bonds, with a long grace period and an amortization period of 25 to 35 years.

An exit bond is a buyback financed by future cash flows. Debtor countries invite banks to bid to exchange their loans for bonds with a future stream of interest payments on a reduced principal (say) fully secured by U.S. Treasury securities. The African Development Bank initiated this type of securitization in Africa (Claessens and Diwan 1989:271; World Bank 1989g:Vol. 1, 18; World Bank 1991g:Vol. 1, 126).

THE ENTERPRISE FOR THE AMERICAS INITIATIVE

In June 1990, U.S. President George Bush announced the **Enterprise for the Americas Initiative (EAI)**, which included reducing part of the $12 billion official debt owed the United States by Latin American countries undergoing World Bank/IMF reforms. To be eligible for debt relief, the Latin American country needed to (1) receive IMF approval for a standby agreement, extended arrangement, or structural adjustment facility, (2) obtain World Bank approval for a structural or sectoral adjustment program, and (3) agree to a satisfactory financing program for debt service reduction with its commercial bank lender.

Under the EAI, the country exchanges United States Agency for International Development or other U.S. official concessional debt for new and restructured debt with a reduced face value. The U.S., which determines the discount or amount forgiven case by case, charges a concessional interest rate on the new debt, which cannot be further restructured. The country must pay the principal on the new debt in U.S. dollars. However, as in the case of Bolivia, Chile, and Jamaica in the early 1990s, a country with an Environmental Framework Agreement with the U.S. government can pay interest in local currency, depositing the funds to finance debt-for-nature

projects. From 1991 through 1993, the United States wrote down 54 percent of the $1.6 billion official debt of Chile, Bolivia, Jamaica, Colombia, El Salvador, Uruguay, and Argentina (World Bank 1993g1:35–36, 115).

RESCHEDULING DEBT

In the late 1980s and early to mid-1990s hundreds of billions of external debt stock was rescheduled. In 1988, in Toronto, Canada, the **G7** (**Group of Seven** major industrialized countries – the United States, Canada, Japan, the United Kingdom, Germany, France, and Italy) agreed to reschedule concessional debt, canceling it at least in part, with the balance to be repaid with a 25-year maturity including 14 grace years.

In 1990, British Chancellor John Major proposed Trinidad terms for low-income debt-distressed countries: (1) rescheduling of the entire stock of debt in one stroke instead of renegotiating maturities only as they fall due at 15- to 18-month intervals, (2) increasing the debt cancellation from one-third to two-thirds of outstanding debt stock, (3) capitalizing all interest payments at market rates on the remaining one-third debt stock for five years and requiring phased repayment with steadily increasing principal and interest payments tired to debtor-country export and output growth, and (4) stretching repayments of the remaining one-third debt stock to 25 years with a flexible repayment schedule. The present value of the eligible (poorest) sub-Saharan African countries would be reduced by $18 billion (rather than $2 billion under Toronto terms). Percy S. Mistry (1991:18) indicated that the Trinidad terms "represent a significant departure from business-as-usual by a weighty creditor country."

After the United States and Japan objected to the G7 nations adopting Trinidad terms, Prime Minister Major announced in late 1991 that Britain would unilaterally implement these terms to $18 billion bilateral debt of poor African countries. In late 1994, the G7 and Paris Club adopted Trinidad terms.

In 1990, during the Persian Gulf War, the U.S. government extended generous terms to two middle-income countries, canceling $6.7 billion in military debt owed by Egypt (a "debt for war" swap) and 70 percent of the $3.8 billion U.S. government debt of Poland (favored because of the large Polish-American communities in Chicago and other politically crucial northern states), thus allowing both to evade IMF prescriptions (Food and Agriculture Organization of the U.N. 1991:7; Lancaster 1991:52–54). Mistry (1991:52–54) saw no economic explanation for bilateral creditors' "desultory foot-dragging over the debt crises of Africa and Latin America," whose countries are subject to an IMF and World Bank short leash, while finding more than $13 billion for Egypt and Poland at terms more generous than Toronto terms. For Mistry, this piecemeal approach involved an "embarrassing ad hoc improvisation when G-7 decides to favor debtor countries for some expedient political reasons (e.g., Poland and Egypt) and, by the same token, to punish others using the Damoclean sword of debt as a tool for foreign policy leverage)." These selective initiatives set no precedents for poorer countries in Africa and Latin America but instead, according to Mistry (ibid.), imparted chaos to international debt management.

RESCHEDULING AND WRITING DOWN THE DEBT OF HIPCs

Highly-indebted poor countries (HIPCs) owe almost their entire debt to official bilateral or multilateral creditors. HIPC creditors may be able to reduce poverty by decreasing the HIPC's high debt-service ratio. The HIPCs' 1985–94 *scheduled* debt-service ratio was 64.0 percent, with the ratio *actually paid* 22.2 percent (UNCTAD 1997), meaning that more than one-fifth of annual export receipts was used to pay debt servicing. Reducing the debt overhang not only removes a major barrier to investment (Deshpande 1997) but also increases the adjustment time horizon, so that political elites, many of whom have inherited their debt burden from previous regimes, have time to plan more stable structural changes.

After 1990, Chancellor and (subsequently) Prime Minister John Major and Prime Minister Tony Blair (with Chancellor Gordon Brown) had taken the initiative, in advance of other G8 nations, in rescheduling the entire stock of debt owed by African low-income countries to Britain in one stroke, increasing their debt cancellation, and stretching and increasing the flexibility of the repayment schedule of the fraction of their debt remaining. Nongovernmental organizations and churches in Britain, and subsequently its government, with Brown's 1997 presentation of a Commonwealth "Mauritius Mandate," calling for firm decisions on debt relief for at least three-fourths of the eligible HIPCs by 2000, helped spur a movement for Jubilee 2000, debt remission for selected HIPCs.

The World Bank/IMF HIPC initiative, begun in 1997, usually required successful adjustment programs for three to six years, after which Paris Club official creditors would provide relief through rescheduling up to 80 percent of the present value of official debt (UNCTAD 1997a). The Bank and Fund, in principle, maintained the conditions (sound macroeconomic policies and improved governance) for debt writeoffs, to avoid a vicious circle in which HIPCs would return to get newly acquired debt forgiven.

In response to critics, who complained that the time for adjustment was too long, the Bank and Fund announced an enhanced HIPC initiative in 1999 to reduce the requisite adjustment to three years before relief. Still, by the end of 2000, the IMF and Bank, with a flurry of activity, under pressure from Jubilee 2000, had provided (or was scheduled to provide) concessional funds, based on profits from lending and the sales of gold, to begin the three-year process of reducing the debt of 22 HIPCs. However, because the G8 failed to commit to front loading debt write-downs, the immediate effect in decreasing actual debt-service payments, once the debtor meets conditions, is small. Moreover, reducing debt payments in later years will depend on uncertain private and government donations to HIPC funds.[10]

By early 2004, 10 countries – Benin, Bolivia, Burkina Faso, Guyana, Mali, Mauritania, Mozambique, Nicaragua, Tanzania, and Uganda – had completed adjustment under the enhanced initiative. At the same time, 17 countries – Cameroon, Chad,

[10] World Bank official Isac Diwan admits that only 40 cents of every dollar of cancelled debt constitutes additional resources for debtors (*World Bank Development News*, February 15, 2001). Nafziger (1993:190–192) discusses the complicated reasoning behind statements similar to Diwan's.

Democratic Republic of Congo, Ethiopia, The Gambia, Ghana, Guinea, Guinea-Bissau, Honduras, Madagascar, Malawi, Niger, Rwanda, Sao Tomé and Principe, Senegal, Sierra Leone, and Zambia – reached an interim period in adjustment and macroeconomic stabilization. As of early 2004, 11 HIPCs, still to be considered before the HIPC initiative expired at the end of the year, were Burundi, Central African Republic, Comoros, Republic of Congo, Ivory Coast, Lao PDR, Liberia, Myanmar, Somalia, Sudan, and Togo. Many in the last two categories may lack the political stability and bureaucratic capacity to undertake the World Bank/IMF's required program.

The DCs' and the international financial institutions' continuation of writing down debt, liberalizing trade, and increasing aid to counter external shocks could spur HIPC leaders to undertake further long-term political and economic reforms, at least in some countries listed in the previous paragraph, if not to Sierra Leone, Liberia, Somalia, Sudan, Congo (Kinshasa), and Côte d'Ivoire, where political conflict or blatant corruption precludes even minimally effective capital utilization. Indeed, in predatory states such as Sudan and Sierra Leone, the ruling elite and their clients "use their positions and access to resources to plunder the national economy through graft, corruption, and extortion, and to participate in private business activities" (Holsti 2000:251).

The immediate cost to DCs of a program similar to Jubilee 2000 for nonpredatory states is negligible. Efforts to "wipe the slate clean" for selected HIPCs could free political leaders, especially in Africa, of their inherited debts, and provide some breathing space to enable them to focus on long-range planning and investment to improve the general welfare and reduce their vulnerability to deadly political violence.[11]

What effect did the HIPC initiative have? HIPCs continued their trend of falling debt-service ratios. Latin American HIPCs' ratios declined from 30 percent in 1992 to 14 percent in 1999 to 12 percent in 2001, whereas sub-Saharan HIPCs' ratios fell from 17 percent in 1992 to 16 percent in 1999 to 9 percent in 2001 (World Bank 2003h:13). And the 10 countries that first completed adjustment under the enhanced HIPC debt initiative relief reduced their total debt service from $1.0 billion in 1998 to $0.6 billion in 2002, freeing resources to increase education and health spending from $1.4 billion in 1998 to $2.1 billion in 2002 (UNDP 2003:153).

The Policy Cartel

Mosley, Harrigan, and Toye (1991:Vol. 1) refer to the International Monetary Fund and World Bank as a "managed duopoly of policy advice." Before arranging LDC debt writeoffs and write-downs, the World Bank, DC governments, or commercial banks require the IMF's "seal of approval" in the form of a stabilization program.

[11] U.N. Secretary-General Kofi Annan (1998:6) "suggested that creditors consider clearing the entire debt stock of the poorest African countries while expanding the Highly Indebted Poor Countries program of the World Bank."

This requirement creates a monopoly position, leaving debtors little room to maneuver. Latin American and African debtors would benefit from the strengthening of independent financial power within the world economy. Yet, the Bretton Woods institutions, the World Bank and IMF, as charged by their DC and LDC shareholders, do not use their resources to write down or cancel debts. Both institutions must be satisfied that a borrower can repay a loan. There may be few alternatives to financial restrictions, devaluation, price liberalization, and deregulation for eliminating a chronic debt crisis.

The reader should consult Chapters 15, 17, and 19 for other factors influencing LDC external adjustment, with emphasis on sections that discuss direct foreign investment, concessional aid, DCs' reduced trade barriers against LDCs, and LDC trade and exchange-rate policies to avoid biases against exports.

Conclusion

1. Some of the causes of the debt crisis have been global shocks and instability, a decline in the ratio of official aid to commercial loans, inefficiency, poor economic management, overvalued domestic currencies, and capital flight.
2. Lending to LDCs (especially Latin American) may be undermined by capital flight because perceived risk-adjusted returns are higher in haven countries than in LDCs. Equilibrium exchange rates, fiscal reform, increased efficiency of state enterprises, and nondiscriminatory haven country policies can help reduce flight, but ironically exchange controls also may be necessary sometimes.
3. LDCs, especially Latin American, had an increase in their real external debt in the last quarter of the 20th century. The LDC debt service ratio more than doubled from the early 1970s to the late 1980s, but has fallen since then. The exposure of several major U.S. commercial banks to losses from LDC loan writeoffs or write-downs was substantial in the 1980s.
4. The ratio of debt service to GNP is not always a good indicator of the debt burden. Many large LDC debtors borrowed heavily because of their excellent international credit ratings.
5. Middle income countries account for almost four-fifths of the total outstanding debt of all LDCs. Yet the debt burden for low-income countries, such as the majority of sub-Saharan African countries, which have poor credit ratings, may be as heavy as for middle-income countries.
6. Cross-border capital movements benefited LDC recipients in the long run but, because of potential reverse outflows, increased vulnerability to financial and currency crises. These financial and currency crises, also caused by large bank bad debt, current account deficits, real currency appreciation, and fast credit growth, had a negative impact on economic growth.
7. In the late 1970s through the early years of the 21st century, developing countries with chronic external deficits required economic adjustment, imposed domestically or by the World Bank or IMF. In 1979, the World Bank began structural adjustment loans and soon thereafter sectoral adjustment loans. IMF loans of

last resort were conditioned on an LDC implementing an acceptable macroeconomic stabilization program. Additionally, in 1986–87, the IMF initiated structural adjustment loans for LDCs experiencing unanticipated external shocks.

8. Finance officials in DCs instituted several plans for resolving the debt crisis. The Baker plan (1985) emphasized new loans from multilateral agencies and surplus countries, whereas the Brady plan (1989) stressed debt reduction or write-downs. One strategy for debt reductions, debt exchange, was used less frequently in the late 1990s and the years thereafter.
9. Debt write-downs require multilateral coordination among creditors to avoid the free-rider problem in which nonparticipating creditors benefit from the increased value of debt holdings.
10. Mosley, Harrigan, and Toye refer to the IMF and World Bank as a "managed duopoly of policy advice." Before the World Bank, DC governments, or commercial bank arrange LDC debt write-downs, they require that the IMF approve the LDC's macroeconomic stabilization program.

TERMS TO REVIEW

- Baker plan
- basis points
- Brady plan
- capital flight
- debt exchanges
- debt-for-development swaps
- debt-for-nature swaps
- Debt Reduction Facility
- debt service
- debt-service ratio
- Enterprise for the Americas Initiative (EAI)
- exchange control
- Group of Seven (G7)
- hedging
- HIPC (highly-indebted poor countries') initiative
- IDA-eligible countries
- London Club
- London Interbank Offered Rate (LIBOR)
- managed floating exchange-rate system
- negative real interest rates
- net transfers
- Paris Club
- policy cartel
- propensity to flee
- real domestic currency appreciation
- real domestic currency depreciation
- risk premium
- total external debt (EDT)

QUESTIONS TO DISCUSS

1. Discuss the nature and origins of the LDCs' external debt problem. What impact has the debt crisis had on LDC development? On DCs?
2. Define total external debt, debt service, and debt-service ratio? How useful is each of these indicators as a measure of the debt burden?
3. Who are the major LDC debtors? Explain the reasons for the discrepancies between the leading LDC debtors and LDCs with the greatest debt burdens.

4. What is capital flight? What relevance does it have for the debt problem? What can source and haven countries do to reduce capital flight?
5. To what extent does the IMF play the role of the lender of last resort? To what extent does the IMF follow Walter Bagehot's rule?
6. What are the causes of financial crises, such as the Asian crises?
7. Assess the views of fundamentalists versus the Columbia school in their explanation for the Asian financial crisis and how to resolve it.
8. What changes, if any, need to be made to the international financial architecture to spur growth and reduce poverty?
9. What changes are needed in sovereign debt restructuring?
10. What plan should the international community adopt to resolve the debt crisis? In your answer, consider plans similar to the Brady Plan, debt exchanges, the HIPC initiative, and other options, as well as the roles of the World Bank, International Monetary Fund, and DCs.
11. What impact has incurring major external debt by LDCs had on global and country income distribution? What impact have attempts to reduce the debt crisis had on income distribution?

GUIDE TO READINGS

For an interchange between two giants of the profession, in which Harvard's Kenneth Rogoff, then the IMF's Director of Research, attacks the views of Columbia's Joseph Stiglitz, sometime World Bank chief economist, on globalization and the IMF, see http://www.worldbank.org/, searching Stiglitz, then clicking "Presentation," keywords "Economic Development Globalization."

Annual publications by the World Bank, *Global Development Finance* (usually two volumes) and *Global Economic Prospects and the Developing Countries*, and the Organization for Economic Cooperation and Development's (OECD's) annual report of the Development Assistance Committee are major sources on LDC debt. Consult chapters on debt in UNCTAD's *Trade and Development Report* and *Least Developed Countries* and the IMF's *World Economic Outlook*. The Institute of International Economics in Washington, DC (http://www.iie.com), provides papers and lists useful monographs on debt problems.

For criticisms of the World Bank–IMF Washington Consensus approach, look at Nayyar's edited book (2002) with articles by Stiglitz (2002c:218–253) and You (2002:209–237), Stiglitz (2000b), and a series of papers and speeches by Stiglitz in an edited book by Chang (2001). For a review of Stiglitz's views on globalization, read Basu (2003:885–899).

Kaminsky, Reinhart, and Vegh (2003:51–74) analyze the "unholy trinity" of "fast and furious" financial contagion – herding (or informational cascades), trade linkages, and financial linkages.

For recommendations for a new international financial architecture, read Eichengreen (1999), Mistry (1999:93–116), Kenen (2001), Nayyar (2002), the International Financial Institution Advisory (Meltzer) Commission (2000), and the Stiglitz articles

in the previous paragraph. On debt and international architecture, see Birdsall and Williamson (2002).

On sovereign debt restructuring, see Krueger (2002; 2003:70–79), Fischer (1999:85–104), and Reinhart and Rogoff (2004:57). On reducing IMF and G7 rescue packages and increasing creditor risk, see Roubini and Setser 2004.

The Fall 1999 issue of the *Journal of Economic Perspectives* on global financial instability has articles by Miskhkin (1999:3–20) on monetary framework, Rogoff (1999:21–42) on international institutions, Caprio and Honohan (1999:43–64) on restoring banking stability, Edwards (1999:65–84) on the effectiveness of capital controls, and Fischer (1999:85–104) on the need for an international lender of last resort. Krugman, *The Return of Depression Economics* (1999), and Barro (2001) are sources on the Asian crisis.

For a comparison of the Asian and Russian crises, see Montes and Popov (1999) and Chapter 17. Noble and Ravenhill (2000a) have an edited book on the Asian financial crisis and the international financial architecture.

For recent information on HIPCs and other debt issues, see http://www.worldbank.org/ or www.imf.org/, including the monthly *Finance and Development* at http://www.imf.org/external/pubs/ft/fandd/2004/03/index.htm and the bimonthly *IMF Survey* at http://www.imf.org/external/pubs/ft/survey/surveyx.htm.

Ranciere, Tornell, and Westerman (2003) use empirical analysis to assess financial liberalization.

Lessard and Williamson (1987) and Williamson and Lessard (1987) discuss the meaning, origins, and policy implications of capital flight.

17 International Trade

Scope of the Chapter

This chapter discusses the relationship between trade and economic growth, arguments for and against tariff protection, the shift in LDCs' terms of trade, import substitution and export expansion in industry, DC import policies, expansion of primary export earnings, trade in services, protection of intellectual property rights, foreign exchange-rate policies, LDC regional integration, global production networks (the borderless economies), and protection of infant entrepreneurship.

Does Trade Cause Growth?

In the long run, liberal international trade is a source of growth (Sachs and Warner 1997; Baldwin 2003).[1] Is the high correlation between trade and GDP per capita a result of income causing trade or trade causing growth? Jeffrey A. Frankel and David Romer (1999:379–399) test the direction of causation by constructing a measure of trade based on geographic characteristics rather than on income. They then use this measure to estimate the effect of trade, if any, on per capita income. They find that a 1-percentage-point increase in trade to GDP increases income per person by ½–2 percent. Trade mainly raises income by spurring the growth of productivity per input; in addition trade affects income by stimulating physical and human capital accumulation.[2] Alan Winters (2004:F10–F15) attributes the productivity gains to increased import competition, technological improvements embodied in imports, export expansion, and learning through trade.

However, Greenaway, Morgan, and Wright (1997) show that, in the short run, trade liberalization by LDCs in the 1980s and 1990s was associated with deterioration in growth. But, the effect of trade openness on the poorest portion of the LDC population is uncertain. Lars Lundberg and Lyn Squire (1999), who use Sachs and

[1] International trade is liberal if average tariff rates are below 40 percent, average quota and licensing coverage of imports are less than 40 percent, the black market exchange-rate premium is less than 20 percent, and there are no extreme controls (taxes, quotas, or state monopolies) on exports (Sachs and Warner 1997). Rodriguez and Rodrik (1999) criticize the Sachs–Warner approach, arguing that illiberal trade is highly correlated with other growth inhibitors that may be the source of poor economic performance.

[2] In response to criticism, Frankel and Rose (2002) achieve the same results when they include institutions in their equation.

Warner's measure for openness and liberal trade, find that openness is negatively correlated with income growth among the poorest 40 percent of LDCs' population but positively correlated with growth among higher-income groups. However, David Dollar and Aart Kraay (2004:F26), who examine decade to decade changes, find that with trade liberalization, "the percentage changes in incomes of the poor [bottom 20 percent] on average are equal to percentage changes in average incomes," although the variation around the trend is substantial. Alan Winters, Neil McCulloch, and Andrew McKay (2004:72–115) think that trade liberalization, by increasing productivity, may be the most cost-effective antipoverty policy. Indeed, William Cline (2004:xiv, 171–226) estimates that gains from global free trade would be $200 billion (at 1997 prices) yearly (half the gains to LDCs), reducing $2/day poverty by 500 million over 15 years. Vietnam, for example, reduced poverty from 75 percent of the population in 1988 to 37 percent in 1998 during the height of its globalization (Dollar and Kraay 2004:F29).

Ashok Parikh (2004) finds that trade liberalization promotes economic growth on the supply side through more efficient resource allocation, increased competition, and a greater flow of ideas and knowledge. However, growth has a negative impact on the trade balance that in turn could have negative effects on growth through a reduced trade balance and adverse terms of trade. Thus trade liberalization, which promotes economic growth, can constrain growth through an adverse impact on the balance of payments.

Moreover, trade liberalization amid stabilization, even if politically possible, may perpetuate a government budget crisis. As mentioned in Chapter 5, Mosley, Harrigan, and Toye (1991, vol. 1:110–116) argue that early liberalization of external trade and supply-side stimulation in "one glorious burst" can result in rising unemployment, inflation, and capital flight, and the subsequent undermining of adjustment programs. The policy implications are that liberal trade is beneficial in the long run, if not undertaken abruptly but sequenced as part of a comprehensive program of economic reform (see Chapter 19).

Arguments for Trade: Comparative Advantage

Costs, prices, and returns vary from one country to another. A country gains by trading what it produces most cheaply to people for whom production is costly or even impossible. In exchange, the country receives what it produces expensively at the other country's cheaper costs. To explain these mutual trade benefits, international economists still accept the doctrine of **comparative advantage** formulated by Adam Smith and David Ricardo, English classical economists of the late 18th and early 19th centuries.

Assume a world of two countries (for example, a LDC like Pakistan and a DC like Japan) and two commodities (for example, textiles and steel). Other classical assumptions include

1. Given productive resources (land, labor, and capital) that can be combined in only the same fixed proportion in both countries

TABLE 17-1. Comparative Costs of Textiles and Steel in Pakistan and Japan

	Pakistan	Japan
Textiles (price per meter)	Rs. 50	Y300
Steel (price per ton)	Rs. 200	Y400

2. Full employment of productive resources
3. Given technical knowledge
4. Given tastes
5. Pure competition (so the firm is a pricetaker)
6. No movement of labor and capital between countries but free movement of these resources within a country
7. Export value equal to import value for each country
8. No transportation costs

The theory states that world (that is, two-country) welfare is greatest when each country *exports products whose comparative costs are lower at home than abroad* and *imports goods whose comparative costs are lower abroad than at home.*

International trade and specialization are determined by *comparative costs,* not *absolute costs.* Absolute cost comparisons require some standard unit, such as a common currency (for example, textiles $5 a meter in Pakistan and $10 in Japan). But you cannot compare absolute costs without an exchange rate (such as a Pakistani rupee price of the Japanese yen).

Assume that before international trade, the price of textiles is Rs. 50 per meter in Pakistan and Y300 in Japan, and the price of steel per ton is Rs. 200 and Y400 (shown in Table 17-1).

We cannot conclude that both textiles and steel are cheaper in Pakistan simply because it takes fewer rupees than yen to buy them. The two currencies are different units of measuring price, and there is no established relationship between them. If Japan issued a new currency, converting old yen into new ones at a ratio of 100:1, both products would then sell for fewer yen than rupees, even though the real situation had not changed.

It is easy to compare relative prices, however. The ratio of the price of steel to that of textiles is 4:3 in Japan and 4:1 in Pakistan. Hence, the relative price of steel is lower in Japan than in Pakistan, and the relative price of textiles is lower in Pakistan than in Japan. Thus, Pakistan has a comparative cost advantage in textiles and Japan a comparative cost advantage in steel.

To demonstrate that the LDC (Pakistan) gains when exporting textiles in exchange for Japanese steel, we must use an exchange rate (for example, rupee price of the yen) to convert comparative prices into absolute price differences. Pakistanis will demand Japanese steel if they can buy yen for *less than* half a rupee per 1 yen. Why? Because steel is *absolutely* cheaper in Japan than in Pakistan. If, for example,

people purchase 1 yen for one-fourth of a rupee, Japanese steel sells for Rs. 100 (Y400) – cheaper than the Pakistani steel price or Rs. 200. By contrast, the Japanese will buy Pakistani textiles if they can sell 1 yen for *more than* one-sixth of a rupee. At an exchange rate of 1 yen per one-fourth of a rupee, for example, the Japanese can buy Pakistani textiles for Y200 (Rs. 50) – cheaper than the Japanese price of Y300.

International trade takes place at any exchange rate between half a rupee per 1 yen (the maximum rupee price per yen to induce Pakistanis to trade) and one-sixth of a rupee per 1 yen (the minimum rupee price per yen to induce the Japanese to trade). Within this range, the *absolute* price of steel is lower in Japan than in Pakistan, and the *absolute* price of textiles is lower in Pakistan than in Japan, so both countries gain from trade.

This exchange-rate range is not arbitrary. If it is *more than* half a rupee per 1 yen, there is no trade, because Pakistan does not demand any Japanese goods. If it is *less than* one-sixth of a rupee per yen, there is no trade, because Japan demands no Pakistani goods.

Given our assumption, if relative prices are the same in the two countries before trade, there will be no trade. If, for example, the relative prices of steel and textiles are Rs. 200 and Rs. 50 in Pakistan, and Y1,200 and Y300 in Japan, there is no exchange rate at which both countries demand a good from the other.

Pakistan gains (or at least does *not* lose) by specializing in and exporting textiles, in which it has a comparative cost advantage, and by importing steel, in which it has a comparative cost disadvantage. Pakistan obtains steel more cheaply by using its productive resources to produce textiles, and trading them at a mutually advantageous rate for steel, rather than by producing steel at home.

Although the theory can be made more realistic by including several countries, several commodities, imperfect competition, variable factor proportions, increasing costs, transport costs, and so on, these changed assumptions complicate the exposition but do *not* invalidate the principle of free trade according to a country's comparative advantage. For example, the **factor proportions theory** or **Heckscher–Ohlin theorem** (Ohlin 1933; Heckscher 1950:272–300), introduced by two Swedish economists, shows that a nation gains from trade by exporting the commodity whose production requires the intensive use of the country's relatively abundant (and cheap) factor of production and importing the good whose production requires the intensive use of the relatively scarce factor. International trade is based on differences in factor endowment, such as Pakistani labor abundance and Japanese capital abundance. Pakistan has a comparative advantage in labor-intensive goods (textiles) and Japan comparative advantages in capital-intensive goods (steel), meaning textile opportunity costs (measured by steel output forgone per textile unit produced) are greater in Japan than in Pakistan.[3]

[3] Kenen (1994:19–85) elaborates on the theory of comparative advantage, the Heckscher–Ohlin thesis, and the Leontief paradox contradicting that thesis. Burtless (1995:800–816) and Wood (1995) discuss the effect of trade on wages in DCs and LDCs.

Does foreign investment in LDCs follow comparative advantage? The Japanese economist Kiyoshi Kojima (1978:134–151) argues that whereas U.S. MNCs invest abroad because of monopoly advantages from patents, technology, management, and marketing (see Chapter 15), Japanese (and Korean) MNCs invest in LDCs to take advantage of their comparative advantage in natural resources or in labor-intensive commodities, a pattern that promotes trade and specialization. Critics from the anti–Davos World Social Forum, discussed in Chapter 15, would object not so much to free trade under pure competition according to comparative advantage but free, footloose, capital movements that allegedly contribute to oligopolistic concentration similar to that in coffee roasting and processing (Chapter 7).

Table 4-3 shows that about three-fourths of DCs' trade is with other DCs; indeed, DCs comprise 76 percent of the world's trade. The majority of the trade, then, is between economies with similar factor proportions, an abundance of capital and skilled labor and not along Heckscher–Ohlin lines (see intra-industry trade).

Comparative advantage may be based on a **technological advantage** (as in Japan, the United States, and Germany), perhaps a Schumpeterian innovation like a new product or production process that gives the country a temporary monopoly in the world market until other countries are able to imitate. The **product cycle model** indicates that while a product requires highly skilled labor in the beginning, later as markets grow and techniques become common knowledge, a good becomes standardized, so that less-sophisticated countries can mass produce the item with less skilled labor. Advanced economies have a comparative advantage in nonstandardized goods, while LDCs have a comparative advantage in standardized goods (Vernon 1966:190–207). Product cycle is illustrated by specialization in cotton textiles shifting from England (the mid-18th to mid-19th centuries) to Japan (the late 19th to early 20th centuries) to South Korea, Taiwan, China, Hong Kong, and Singapore (beginning in the 1960s) subsequently joined by Thailand (in the 1980s). Call center outsourcing cycled from rural Nebraska to Ireland to India, with the prospect that rising wages there with growth could shift outsourcing to other low-income economies (Slater 2004:A7). Automobiles shifted from the United States (through the late 1960s) to Japan (the mid-1970s through the late 1980s), to South Korea, with the next shift uncertain – a shift among high-income economies with a global seamless network producing a world car, or to a newly industrializing country such as China or Malaysia. Foreign investment and technological transfer by U.S. automobile companies in Japan (for example, General Motors with Isuzu and Ford with Mazda) and Japanese companies in South Korea (Mitsubishi with Hyundai) have helped shift comparative advantage. Indeed, the Japanese economist Miyohei Shinohara (1982:32–33, 72–75, 127–128) speaks of a **boomerang effect**, imports in reverse or intensification of competition in third markets arising from Japanese enterprise expansion in, and technology exports to, other Asian countries. But the Japanese economist Shojiro Tokunaga and his collaborators regard this competitive intensification from third markets as part of a Japanese-led specialized international division of knowledge that enables Japanese companies to maintain competition in the face of yen appreciation (see later).

The Berkeley, California, economist Paul Romer (1994a:5–38) argues that the theory of comparative advantage, by focusing only on existing goods, understates the advantages of free trade and the costs of trade restrictions. Trade barriers thwart the potential introduction of new goods and productive activities from abroad. Given imperfect competition and barriers to entry, fixed costs restrict the otherwise almost limitless number of goods that innovative entrepreneurs can introduce. If tariffs, quantitative restrictions, and administrative barriers prevent a new good from ever appearing, the harm includes the entire consumer and producer surplus, not just the static loss from forgone specialization in goods enjoying a comparative advantage (see estimates by Rutherford and Tarr [2002:247–272] of the substantial loss in growth over several decades). Furthermore, trade restrictions adversely affect intermediate goods output, preventing LDCs' participation in the value added of global production networks (more on this later).

Alan Winters (2004:F6) also reasons that the long-run benefits of trade are greater than comparative static analysis shows. Trade restrictions' effect on price divergences rewards rent seeking, corruption, and predatory behavior (see Chapter 4). Free trade engenders greater competition, undermining monopolistic behavior by domestic firms. Chile, by abolishing quotas and reducing tariffs in the 1970s and 1980s, transformed economic performance and quality of public administration. Furthermore, as Chapter 19 states, during the initial years of transition, Poland's liberalization of international trade provided competition to domestic monopolies and aided price decontrol, in contrast to Russia, with no trade liberalization, where most industries were dominated by a single giant enterprise that inflated prices under price decontrol. Russia's lack of competition just after the fall of communism contributed to inside privatization by the *nomenklatura*, the former Soviet bureaucracy and management.

Contemporary theory implies that (1) less-developed countries gain from free international trade and (2) lose by tariffs (import taxes), subsidies, quotas, administrative controls, and other forms of protection. But theory holds that free trade has benefits other than more efficient resource allocation. It introduces new goods and productive activities, widens markets, improves division of labor, permits more specialized machinery, overcomes technical indivisibilities, utilizes surplus productive capacity, and stimulates greater managerial effort because of foreign, competitive pressures (Leibenstein 1966:392–415, discussed in Chapter 13; Myint 1958:317–337).

Most important, free trade leads to greater productivity because it disperses new ideas. Indeed, the World Bank (2004f:2–3) indicates that productivity growth in manufacturing sectors that compete in international markets is 1.5–2.5 percentage points higher than productivity growth economy wide. Adam and O'Connell (2004:150–173) find that, because of exports' productivity spillovers, trade is preferable to aid.

Arguments for Tariffs

Despite their apparent advantage, few newly industrializing countries pursue free trade policies. This section evaluates some major arguments for tariffs. Because of

a basic symmetry in argument, subsequent arguments for tariffs except the revenue argument also constitute cases for protective devices such as subsidies (including supporting industrial policy by the state). Most arguments imply a reduction in world welfare: the country levying the tariffs gains at the expense of other countries. An LDC might justify this by the fact that usually this means a poorer country (with relatively poor individuals) gaining at the expense of a richer country.

The most frequent rationale for tariffs is to protect infant industries. Alexander Hamilton, the first U.S. secretary of the treasury, criticized Adam Smith's doctrine of **laissez-faire** (governmental noninterference) and free trade. Hamilton supported a tariff, passed in 1789, partly designed to protect manufacturing in his young country from foreign competition. **Infant industry arguments** include (1) increasing returns to scale, (2) external economies, and (3) technological borrowing.

Increasing returns to scale. A new firm in a new industry has many disadvantages: It must train specialized management and labor, learn new techniques, create or enter markets, and cope with the diseconomies of small-scale production. Tariff protection gives a new firm time to expand output to the point of lowest long-run average cost.

An argument against this notion is illustrated by a world of two countries, each of which initially produces a different good with decreasing costs at the lowest long-run average cost. Assume that later both countries levy tariffs to start an infant industry in the good produced by the other country, so that the market is divided and both countries produce both goods well below lowest average cost output. In this case, the world loses specialization gains and economies of scale. The world would be better off if each country specialized in one decreasing-cost product, exchanging it for the decreasing-cost product of the other country.

But some may ask if infant industry protection would not be warranted for the firm in a newly industrializing country competing with firms in well-established industrial countries. In this instance, however, tariff protection, by distributing income from consumers to producers, amounts to a subsidy to cover the firm's early losses. Why should society subsidize the firm in its early years? If the enterprise is profitable over the long run, losses in the early years can be counted as part of the entrepreneur's capital costs. If the enterprise is not profitable in the long run, however, would not resources be better used for some other investment?

Yet government might still want to protect infant industry. First, government support may cover part of the entrepreneur's risk when average expected returns are positive but vary widely. Second, the state may support local technological learning and knowledge-creating capabilities. Third, government planners may better forecast the future success of the industry than private entrepreneurs but protect or subsidize private investment to avoid direct operation of the industry themselves. Fourth, protecting the new industry may create external economies, or promote technological borrowing, both discussed later.

Ha-Joon Chang (2002) contends that the United States and other present-day DCs relied heavily on tariffs and subsidies during the 19th and early 20th century. But after DCs had used the protectionist ladder to climb to high levels of development they

kicked away the ladder for contemporary LCs, arguing for a free-market liberalism that they did not adopt. Although there is truth to the charge of DCs' hypocrisy on liberalism, Michael Clemens and Jeffrey Williamson (2002) show that increasing tariffs after 1970, when average tariff rates were low, hurt growth, while protection would have helped growth when tariffs were moderately higher. Thus, protection during the 19th and early 20th centuries would have stimulated growth. Wilfred Ethier (2002) shows that tariff rates in the early period were much higher than in the last three to five decades, when U.S. and DC leadership contributed to multilateral, nondiscriminatory tariff reductions to historically low levels.

External economies. These are production benefits that do not accrue to the private entrepreneur. One example is technological learning, measured by a learning curve that shows how much unit cost falls with the increased labor productivity from cumulative experience. This curve, which is downward sloping over time, is a source of dynamic increasing returns. Related to these, external economies also include the training of skilled labor, and lower input costs to other industries, all of which cannot be appropriated by the investor but may be socially profitable even if a commercial loss occurs. Government can make a rational case for protecting or subsidizing such investment. However, political leaders who discover immeasurable externalities for pet projects can easily abuse the argument.

Technological borrowing. Classical economists assumed a given technology open to all countries. In reality much of the world's rapidly improving technology is concentrated in a few countries.

Much international specialization is based on differences in technology rather than resource endowment. Assume both Italy and Indonesia can produce corn, but only Italy has the technical capacity to manufacture spectrometers. Thus, Italy trades spectrometers, in which it has a comparative advantage, for Indonesia's corn. Yet Indonesia has the necessary labor and materials, so that if Italy's technology could be acquired, Indonesia's comparative advantage would shift to spectrometers. If Indonesia levies a tariff on spectrometers, Italian companies may transfer capital and technology to produce spectrometers behind Indonesia's tariff wall. Once Indonesia acquires this technology, its average costs will be lower than those in Italy.

Critics raise one question: If Indonesia is open to foreign investment and if foreign technology gives Indonesia a comparative advantage, why is a tariff necessary to induce the foreign entrepreneur to produce spectrometers there? Should not the foreign spectrometer producers see the opportunity and bring capital and technology to Indonesia?

Tariffs, subsidies, exchange controls, and quantitative restrictions may shelter inefficient technological transfers from abroad. In India, in the 1960s, protection conferred such monopoly power on automobile manufacturers Hindustan Motors and Premier Automobiles (in a joint venture with Fiat and later Nissan) that they subtracted value from raw materials and purchased inputs. The automobile industry had an **effective rate of protection** (that is, protection as a percentage of value

added by production factors at a processing stage) of 2,612 percent (Bhagwati and Desai 1970:335–367); indeed the foreign-exchange cost of the inputs used in producing a domestic automobile was higher than the foreign-exchange cost of buying an automobile directly from abroad! India acquired few technical learning gains from protection, which instead supported technological sloth. Moreover, India's high rates of protection reduced the rupee price of the dollar below the equilibrium price, thus shortchanging (or discriminating against) exporters who exchanged their dollars for rupees. Later, we will discuss protection of infant entrepreneurship as an alternative to protecting infant industry.

Politically, it is difficult to end tariff protection for infant industries. When governments feel compelled to protect infant industry, they could instead provide subsidies that are politically easier to remove rather than tariffs.

Intraindustry trade. Ironically, about one-fourth of international trade consists of **intraindustry trade**, exchanges by two countries (primarily DCs) within the same industry (or standard industrial classification). Examples include the automobile (Germany exports Mercedes-Benz to the United States, which exports Cadillacs to Germany), office machinery, and running-shoe industries. Intraindustry trade plays a particularly large role in trade in manufactured and high-technology goods among DCs. The markets for these goods are **monopolistically competitive**, an industry structure characterized by a large number of firms, no barriers to entry, and **product differentiation**, in which corporations proliferate models, styles, brand names, and other positive distinguishing traits, such as image, service, and unique taste or components, sometimes enhancing different identities through advertising.[4] Product differentiation assures each firm a monopoly in its particular product within an industry and is thus somewhat insulated from competition. Each firm takes the prices charged by its rivals as given, ignoring the effect of its own price on its competitors' prices. Monopolistic competition assumes that although each firm faces competition from other producers, it behaves as if it were a monopolist. Thus, Mexico, in which General Motors, Ford, Daimler-Chrysler, Toyota, Nissan, and Volkswagen offer substantially different yet competing automobiles, is characterized by monopolistic competition.

Intraindustry trade among DCs, which is a major source of gains from trade, arises (1) when countries are at similar stages of economic development, usually similar in their relative factor supplies (abundant human capital and sparse unskilled labor), so that there is little interindustry trade, and (2) when gains from economies of large-scale production and product choice are substantial (Heilbroner and Galbraith 1990: 575–576; Case and Fair 1996:350–376; Krugman and Obstfeld 1997:137–142).

[4] According to Addison (2003:4), variety is associated with a high income per capita when preferences are diverse and goods not infinitely divisible. With a given income, you might own a car but not a motorcycle because both goods are not sold in fractions. But with a higher income, you might own both. Or "both will be sold if the number of consumers with diverse tastes is large enough." Broda and Weinstein (2004:139–144) show that one of the principal means through which countries benefit from international trade is by expansion of varieties.

What are the implications of intraindustry trade for developing countries? Perhaps only a few newly industrialized countries (NICs), such as South Korea, Taiwan, and Singapore, have attained the human capital abundance, technological sophistication, and level of demand that would allow them to gain from specialized intraindustry trade in differentiated products. But once you have reached the DC "big leagues," where the technological frontier changes incessantly, you probably gain more by the bracing challenge of rivals than by building a wall of protection around you. William Lewis's study (1993:A14) of global manufacturing competitiveness concludes: "Global competition breeds high productivity; protection breeds stagnation."

Changes in factor endowment. A government might levy a tariff so that entrepreneurs modify their output mix to match a shifting comparative advantage perhaps because of a change in resource proportions. Thus, as its frontier pushed westward and capital expanded, the United States changed from a country rich in natural resources, exporting a wide variety of metals and minerals, to a capital-rich country. Analogously, the rapid accumulation of capital and technology may alter comparative advantage from labor-intensive to capital- and technology-intensive goods. Thus, in the 1950s and 1960s, Japan's Ministry of International Trade and Industry (MITI, now METI, the Ministry of Economy, Trade and Industry) tried to establish capital- and technology-intensive industries, which appeared not to be to Japan's static comparative advantage but offered more long-run growth because of rapid technical change, rapid labor productivity growth, and a high **income elasticity of demand** (percentage change in quantity demanded/percentage change in income). South Korea followed a similar strategy in the 1960s, 1970s, and 1980s, but established performance standards for each industry protected (Chapter 3).

We must ask why private entrepreneurs would not perceive the changing comparative advantage and plan accordingly. Even in Japan, although MITI facilitated the output of memory chips for semiconductors, it did not encourage electronics production and tried to consolidate Japan's automobile production into a few giant corporations, attempting to prevent Soichiro Honda from producing cars! Indeed, although MITI was accommodating and supportive, private entrepreneurs invested and coordinated the essential resources (Schultze 1983:3–12). Government protection (or subsidy) is appropriate only if government foresees these changes better than private entrepreneurs.

Revenue sources. As indicated in Chapter 14, tariffs are often a major source of revenue, especially in young nations with limited ability to raise direct taxes. In fact, U.S. tariffs in 1789, despite Hamilton's intentions, did more to raise revenue than protect domestic industry.

Even for a government unconcerned about the losses a tariff imposes on other people, tariffs have limits. At the extreme, a prohibitive tariff brings no revenue. And a tariff that maximizes revenue in the short run will probably not do so in the long run. In the short run, before domestic production has moved into import-competing

industries, demand is often inelastic (that is, the absolute value of the percentage change in quantity is less than the absolute value of the percentage change in price). However, once productive resources adjust, demand elasticities increase; and a greater relative quantity decrease – in response to the increased price from the tariff – occurs. Thus, a government setting a maximum revenue tariff must take account of the long-run movement of production resources.[5]

Improved employment and the balance of payments. The rules of the World Trade Organization allow LDCs to impose trade restrictions to safeguard its balance of payments (World Bank 2004f:221). A rise in tariff rates diverts demand from imports to domestic goods, so that the balance on goods and services (exports minus imports), aggregate demand, and employment increase.[6] The economic injury to other countries, however, may provoke retaliation. Furthermore, the effects of import restrictions and increased prices spread throughout the economy, so that domestic- and export-oriented production and employment decline (Black 1959:199–200) In fact Lawrence B. Krause's (1970:421–425) study of the U.S. economy indicates that jobs lost by export contraction exceed jobs created by import replacement. It is probably more effective to use policies discussed in Chapter 9, and when possible, financial policies (Chapter 14) for employment and home currency devaluation to improve employment and the balance of payments.[7]

From another perspective, Amelia Santos-Paulino and A. P. Thirlwall (2004:F50–F72) find that trade liberalization stimulates export growth (especially through more efficient resource allocation) but raises import growth more, leading to a worsening balance on current account. The shock to international payments is especially great when a highly protected country liberalizes. However, trade liberalization increases income and price elasticities of demand, making it easier for producers to shift resources to the trade sector. Moreover, the timing of this liberalization should recognize interaction with other policies; trade liberalization is more effective when undertaken as part of well-sequenced liberalization of foreign exchange, capital movement, banking, fiscal policy, commodity markets, and institutions (ibid.; Winters 2004: F4–F21).

Reduced internal instability. The sheer economic cost of periodic fluctuations in employment or prices from unstable international suppliers or customers may justify tariffs to reduce dependence on foreign trade. According to the World Bank, commodities accounting for one-third of LDC nonfuel primary exports fluctuated in price by over 10 percent from one year to the next, 1955 to 1976. By encouraging import substitution, tariff protection can reorient the economy toward more

[5] Arguments 1–3 and 5–6 are from Black (1959:191–208); Kindleberger (1963:124–134).

[6] When demand is elastic, the percentage decline in the quantity imported exceeds the percentage increase in price from the tariff, so that import value, price multiplied by quantity, falls. When demand is inelastic, import payments increase, but by less than the government's gain in tariff revenue.

[7] Bhagwati (1994:231–246) argues that the case for protection is valid only when the distortion is foreign, not domestic, for surely the country has some policy discretion in changing domestic distortion.

stable domestic production. Losses in allocative efficiency might be outweighed by the greater efficiency implicit in more rational cost calculations and investment decisions. Yet such a policy may be costly. Tariffs on goods with inelastic demand, such as necessities, increase import payments.

Policy makers should compare the costs of alternative ways of stabilizing the internal economy, such as holding reserves. A LDC with adequate foreign exchange reserves can maintain its purchasing power during times of low demand for its exports. Moreover, a country can use reserves from import commodities to offset the destabilizing effects of sudden shortages on domestic prices and incomes (World Bank 1978i:19–20; Black 1959:206–208).

National defense. A developing country may want to avoid dependence on foreign sources for essential materials or products that could be cut off in times of war or other conflict. A tariff in such a case is only worthwhile if building capacity to produce these goods takes time. Otherwise, the LDC should use cheaper foreign supplies when they are available.

Policy makers will want to examine alternatives to a national defense tariff, such as stockpiling strategic goods or developing facilities to produce import substitutes without using them until the need arises.

In a period of rapid technical change in military and strategic goods, a government must ask whether it is worth increasing costs through tariffs to avoid hypothetical future dangers. Would it not be better to divert these resources to investment, research, and technical education to increase the economy's overall strength and adaptability?

Extracting foreign monopoly or duopoly profit. An LDC facing a foreign monopoly supplier of a good may levy a tariff to transfer some of the monopoly profit to revenue for the LDC. Although world welfare falls, the home country levying the tariff increases its welfare at the expense of the foreign producer.

Assume an LDC firm is competing against a foreign firm: (1) in a duopoly, that is, where there are two firms in an industry, (2) where price and output decisions are interdependence, and (3) where both are characterized by internal economies of scale, that is, a falling average-cost curve. A tariff can increase exports for the protected firm in any foreign market in which the firm operates. However, if the foreign country retaliates with a tariff, the two firms are likely to maintain previous market shares, with a greatly reduced volume of trade (Brandner and Spencer 1981:371–389; Krugman 1984:180–193; Appleyard and Field 1992:162–169).

Antidumping. **Dumping** is selling a product cheaper abroad than at home. Why should a country object to it? If a foreign country is supplying cheap imports favorable to consumers, should not such action be considered as a reduction in foreign comparative costs? Yes and no. If the foreign supplier is dumping as a temporary stage

in a price war to drive home producers out of business and establish a monopoly, a country may be justified in levying a tariff (Black 1959:201–204).[8]

Antidumping actions in the United States and the European Union are known to be linked to macroeconomic conditions. In part, this is because positive injury findings may be easier to make in a downturn.

Reduced luxury consumption. Government may wish to levy a tariff to curtail the consumption of luxury goods. As indicated in Chapter 14, however, an excise tax is probably preferable to a tariff on luxuries, which would have the unintended effect of stimulating domestic luxury goods production.

CONCLUSION

From our arguments, it should now be clear that tariff protection need not necessarily be attributed to analytical error or the power of vested interests, but may be based on some genuine exceptions to the case for free trade. Yet many of the most frequent arguments for tariffs, such as protecting infant industry, are more limited than many LDC policy makers suppose. In fact, a critical analysis of the arguments for tariffs provides additional support for liberal trade policies.

Path Dependence of Comparative Advantage

Paul A. David (1995:332–337) indicates that comparative advantage is path dependent, in which historically remote events influence subsequent patterns of specialization. An early Milwaukee printer, Chrisopher Latham Sholes, designed the typewriter's topmost row of letters to spell QWERTYUIOP to reduce jamming from rapid typing in the dominant right hand and to provide salepersons easy access to the typewriter's brand name in one row. The market position of QWERTY, which established it over other keyboards, has provided a continuing advantage so that even today QWERTY dominates computer keyboard layouts. David contends that there are many other instances in which sequences of choices made close to the beginning of the process determined the path of subsequent location and technological change. California's and Bangalore, Karnataka, India's Silicon Valleys are examples (see also Krugman 1994:221–244).

The Application of Arguments for and against Free Trade to Developed Countries

Dani Rodrik (1998:16–34) argues that DCs have the right to restrict trade when trade creates conditions that conflict with widely held domestic norms (see Chapter 15). Let's examine arguments against free trade to improve DC unskilled labor wages

[8] Antidumping actions in Europe, North America, and Mexico are linked to a downturn in the economy, when positive injury findings are easier to make (Francois and Neils 2003).

and income distribution, to reduce LDC use of child labor, and to prohibit polluting processes in LDCs.

Income distribution. Most of the major arguments for protection for LDCs, such as the infant-industry and revenue arguments, have little validity for DCs. However, improving income distribution is a serious argument for protection. The Stolper–Saumuelson (SS) (1941:58–73) theorem used Heckscher–Ohlin factor proportions theory to examine the implications of free trade for the wage of unskilled labor (the scarce factor) relative to skilled labor (the abundant factor). Won't free trade raise the skill premium (skilled labor wage/unskilled labor wage), supporting an argument for tariffs to increase the relative wage of the unskilled labor and reduce income inequality? This argument might support 1992 U.S. presidential candidate Ross Perot's contention that trade contributed to a "giant sucking sound" moving jobs from the United States abroad.

Given the restrictive assumptions behind the global factor price equalization theorem from which SS derived, Stolper and Samuelson regarded their theorem as a mere curiosity. However, the steady increase in U.S. and U.K. wage inequality from the late 1970s through the 1990s revived interest in SS as a long-run tendency. Economists found that expanded physical capital was complementary to skilled labor but competitive with unskilled labor. Moreover, empirical economists began testing whether increased U.S. wage inequality during this period resulted from growing trade liberalization. Lacking wage data that provided a pure test of skilled and unskilled wages, economists used wages of nonproduction versus production workers, college graduates versus high school dropouts, skill intensity of imports, decline in the relative wage of unskilled-intense (textile, apparel, and leather) manufacturing, and sector-by-sector comparisons as proxy tests for finding the causes of the skill wage premium (Cline 1997).

Most tests from the early 1990s found that skill-biased technological progress (information technology, biotechnology, and R&D spending) was the major factor increasing wage inequality. The relative demand for skilled labor increased even more rapidly than the continuing enskilling of labor supply, largely a result of an increase in the proportion of college graduates in the labor force during the two decades. These same tests found that the reduced relative demand for unskilled-labor-intensive products resulting from expanded skill-intensive exports and unskilled-intensive imports had little, if any, adverse effect on wage inequality (Cline 1997). Krugman (1995:327–377) provided strong support by arguing that as most U.S. trade is with other DCs, a substantial share of which is intraindustry trade, differences in skill intensity would have little relevance for trade.

Many later analyses questioned these findings. William Cline (1997:173–283) disagreed with the assumptions in the prevailing literature of a relatively small difference between the factor intensity of commodities. This literature implicitly assumed that the skill intensities varied between, for example, 0.6 for goods embodying skilled labor, and 0.4 for goods embodying unskilled labor; Cline assumed figures more like 0.8 and 0.2, respectively. Moreover, Cline rejected the others' assumption of a

high elasticity of substitution for labor (percentage change in the skilled–unskilled ratios/percentage change in skilled wages/unskilled wages). That is, Cline believed that trade and the skilled wage premium were more sensitive to changes in the ratio of skilled to unskilled labor.

For Adrian Wood (1994), increasing the assumed differences between the factor intensity of commodities is not enough. He assumes that LDCs have a higher unskilled-labor intensity than DCs in producing the same commodity. In fact, DC firms no longer manufacture many labor-intensive goods imported from LDCs. Most of these imports are noncompeting goods. In calculating factor intensities, economists must consider LDC production of labor-intensive products that DCs have had to abandon. Compared to conventional calculations by trade economists, Wood finds a much larger demand for unskilled labor in LDCs, whereas the demand for skilled labor in DCs is substantially larger. Critics contend that Wood has overstated the variation in factor intensity between the same good produced in both DCs and LDCs as well as the extent of LDC production of noncompeting goods.

Cline (1997:147) finds that trade and immigration caused the skilled wage premium in the 1980s to increase by one-third more than otherwise, an increase that continued into the 1990s. Moreover, his projections through 2015 show that despite the continuing enskilling of the U.S. population, falling protection, falling transport and communication costs, increased unskilled immigrants, deunionization, continuing skill-biased technological change, and an increased portion of the economy producing tradable goods and services should substantially increase the relative demand for the abundant factor, and, thus, the skilled wage premium (Cline 1997: 173–283).

How do we explain the increase in the skill premium amid the relative increase in skilled or educated labor, that is, a continual expansion in college graduates in the United States since the 1960s. Cline (1997:25–29) indicates that U.S. real wages for a given education category declined during the last quarter of the 20th century, but that median and average real wages overall did not plummet because of an increasingly educated population. Moreover, as Daron Acemoglu (2003:199–230) explains, an increase in supply of skills spurs skill-biased technological change that, together with increased factor-biased trade, feeds back to increase the demand for skills.

This enskilling and its increase in the skill premium are a general phenomenon among DCs, although, except for the United Kingdom, other DCs did not experience the same rising income inequality during the last two decades of the 20th century.

The enskilling and skill premium trend in Russia after the fall of communism in 1991 was similar to the U.S.'s trend, and took place with increasing globalization and a rising share of trade with regions outside Eastern Europe and Central Asia. These changes reflected intraindustry skill-biased technological change, institutional change, and increased market pressures. Moreover, the skill premium and the increased returns to schooling it reflected helped spur an increase in the supply of university educated and other skilled people (Peter 2003).

Subsequent studies for LDCs and NICs are mixed, although Forbes (2001:175–209) reinforces Stolper–Samuelson by finding increased wage inequality (in, for

example, labor abundant Taiwan) from expanded trade, arguing for protecting urban skilled and educated workers from less-skilled workers. Moreover, in low-income countries, ruling elites, subject to urban pressures (see Chapter 7 on urban bias), may use minimum wage laws and price policies to protect the incomes of urban workers, usually with more education and skill, relative to farm workers.

Berman, Bound, and Machin (1998) have shown a worldwide enskilling of labor, affected by skill-biased technological change, even in middle-income countries, although eluding the poorest countries (ibid.; Berman and Machin 2000). Arbache, Dickerson, and Green (2004:F73–F96) find that LDCs, such as Brazil, that import DC technology after trade liberalization increase the skill premium.

What about arguments, used by opponents to trade expansion in the United States, for protection against goods embodying cheap labor? Surely law, culture, and relative resource prices and proportions are at the heart of differences that contribute to comparative advantage and disadvantage. Of course, under restrictive assumptions, free trade lowers the wage of the scarce factor, which in DCs is labor (Stolper and Samuelson 1941:58–73). However, free trade increases national income. A rich country can use taxes and subsidies, unemployment compensation, and training programs to see that neither dislocated workers nor the rest of the population loses from external competition. (For a symposium on DC income inequality and trade, see Freeman 1995:15–32; Richardson 1995:33–55; Wood 1995:57–80).

Child labor. The International Labour Organization estimates that about 210 million of the world's children between 5 and 14 years were working, with 170 million in hazardous work, in 2000. More than 100 million children, that is, about 10 percent of the world's children, were working full time. One of every five of the world's primary-school-aged children is not enrolled in school. Child labor, mostly in rural areas, largely reflects the poverty of the children's households (Udry 2003). Indeed "child labor exists because it is the best response people can find in intolerable circumstances" (ibid., p. 1). Anne Krueger (*World Bank Development News,* October 29, 2002) argues that child labor occurs not because parents are cruel but "because the alternative to child labor is starvation or forced early marriages [for girls] or prostitution or life on the streets as a beggar." Poverty increases the incidence of child trafficking from poor countries, especially to areas experiencing a recent boom.

Those skeptical about globalization argue that increased trade openness and FDI encourage LDCs to keep labor costs low by letting children work. However, Eric Neumayer and Indra de Soysa (2003) show that countries that are more open toward trade, globalization, and FDI have a lower incidence of child labor. The link to child labor is not multinational corporations but the country's comparative advantage in unskilled-labor-intensive goods (Busse and Braun 2003). Moreover, Eric Edmonds and Nina Pavcnik (2002) find that a liberalized trade policy in Vietnam increased rice prices and reduced child labor, especially for girls. In a related study, Edmonds (2003) shows that from 1993 to 1997, when GDP per capita in Vietnam grew by 6 to 7 percent yearly, child labor declined by 28 percent. In efforts to generalize cross-nationally, Edmonds and Pavcnik's (2004) analysis demonstrates that trade does not

play a role "in perpetuating the high levels of child labor that pervade low income countries."

Moshe Hazan and Binyamin Berdugo (2002) argue that child labor reduces the net cost of child rearing, enabling high fertility rates. However, once technological change increases the wage differentials between parental and child labor, child labor is less essential, leading parents to invest more in their children's education and reduce fertility (see also Chapter 8). In Egypt, according to Jackline Wahba (2000), the use of child labor falls when the wages of illiterate males increase.

Kathleen Beegle, Rajeev Dehejia, and Roberta Gatti (2003), who use panel data in Tanzania, find that transitory income shocks (reductions) and credit limitations (that is, illiquidity) play an important role in explaining why children work. Dehejia and Gatti (2002), in a cross-country study, find that child labor is more likely when credit markets are inaccessible and when households face periods of income variability. Removing imperfections in informal credit markets can mitigate child labor problems (Chaudhuri 2002).

School fees can be an important contributor to child labor. In Togo, young boys told Human Rights Watch (2003) that they could not afford to pay school fees and so did arduous agricultural work in Nigeria. In a nonpoor economy, legal compulsory school attendance can increase educational attainment (Lleras-Muney 2001). However, low-income countries should resolve the problem, according to Matthias Busse and Sebastian Braun (2003), not by banning child labor, which only pushes poorer households into greater poverty. A better option is economic incentives to pull children out of the labor force, with subsidies, including school meals.

For Udry (2003), targeted subsidies for school attendance are effective in reducing child labor because they successfully address both the problems of parental poverty and imperfect financial markets. An example is Mexico's innovative Progressa poverty program, introduced in 1998, in which mothers of enrolled students receive grants that have a value slightly less than the child would earn by working full time. The program increased school attendance and reduced child labor appreciably. Rural Bangladesh had a program, Food-for-Education, in which children received food worth 15–25 percent of the average monthly earnings of working children (ibid., pp. 16–17).

Should DCs use trade sanctions against LDCs that use child labor? No. Sarbajit Chaudhuri (2003) thinks that these sanctions will produce perverse effects; a liberalized trade policy, which results in positive-sum gains, is more effective in bringing down the evil of child labor.

Trade and the environment. What about the argument for protection against goods using polluting processes that American law prohibits? Do LDC pollution havens distort comparative advantage? Hufbauer and Schott (1993:94) say "no": the international trading rules "are designed to prevent environmental measures from becoming a new handmaiden of protection." Moreover, according to U.S. Census Bureau data, pollution control expenditures as a percentage of value added in manufacturing in 1991 were only 1.72 percent. Furthermore, the U.S. Department of Labor found

that less than 0.2 of 1 percent of layoffs in 1987–90 resulted from environmental and safety regulations (Field and Field 2002:13).

What about cross-national empirical evidence on trade and the environment? Antweiler, Copeland, and Taylor (2001:877–908), using data from 108 cities in 43 DCs and LDCs from 1971 to 1996, find that free trade is generally good for the environment; that is, if trade openness raises world incomes by 1 percent, pollution concentrations fall by roughly 1 percent. For specific countries, the effect of pollution depends on the underlying sources of growth. If capital is the major source of growth, then pollution rises. Indeed the authors indicate that DCs have a comparative advantage in dirty capital-intensive products. Yet environmental regulations, usually offset by other factors, have little overall effect on trade flows. Antweiler et al. (2001) find no evidence that pollution havens distort comparative advantage.

Shifts in the Terms of Trade

One sign of the peripheralness of many low-income primary-product exporting countries is their international trade vulnerability, which is exacerbated by a high export primary commodity concentration ratio (the three leading primary products as a percentage of total merchandise exports, as discussed in Chapter 4). The high commodity concentration of nonoil primary product exporters is associated with volatile export prices and earnings. Some LDCs are vulnerable to relative international price instability not only because of their dependence on volatile primary product exports but also because exports are highly concentrated in a few commodities and directed to a few countries. The resulting wide swings in export prices have had a disastrous effect on government budgets and external balances.

A measure of relative export prices, the **commodity terms of trade,** equals the price index of exports divided by the price index of imports. If export prices increase 10 percent and import prices 21 percent, the commodity terms of trade drop 9 percent, that is, $1.10/1.21 = 0.91$.

Soon after World War II, Raul Prebisch, then Director General of the Economic Commission for Latin America, and Hans Singer, with the U.N. Department of Economic and Social Affairs, argued that the commodity terms of trade of countries (mainly LDCs) producing primary goods (food, raw materials, minerals, and organic oils and fats) decline in the long run. The trend, taken from a League of Nations statistical series, is inferred from the inverse of the rising terms of trade, 1876–80 to 1938, of Britain, a manufactures exporter and primary product importer.

The **Prebisch–Singer thesis** states that the terms of trade deteriorated historically because of differences in the growth of demand for, and the market structure in, primary and manufacturing production (U.N. 1949; Singer 1950:473–485; Prebisch 1962:1–22; also Nurkse 1961). **Engel's law** indicates that as income increases, the proportion of income spent on manufactured goods rises and the proportion spent on primary products falls. If resources do not shift from primary to manufacturing output, there will be an excess supply of, and declining relative price in, primary products and an excess demand for, and increasing relative price in, manufactured goods. Moreover, the predominantly nonoil primary products that LDCs export and

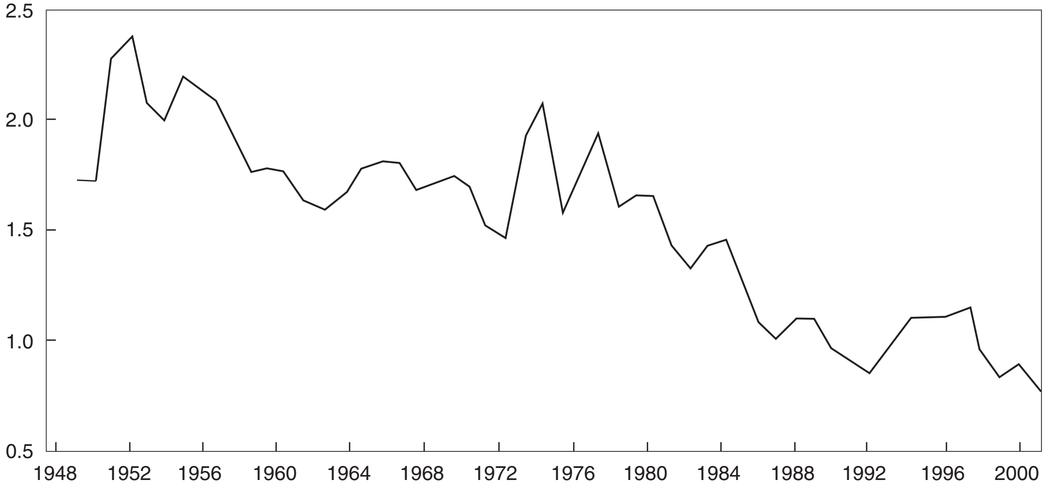


FIGURE 17-1. Nonoil Commodity Prices Relative to Unit Value of Manufactures Exports, 1948–2001.[a]

[a] Index of 33 nonoil commodity prices deflated by the unit value of manufactures index 1987 = 1.0. *Source:* World Bank 1993i:58; World Bank 2002e:18.

the manufactured products exports by DCs and a few newly industrializing countries are not priced the same way. Although global marketing for most primary products is oligopolistic, the LDC farmer is a price taker, with no influence on market price; however, widespread commodity productivity gains can result in lower prices. By contrast, most industrial production and marketing are relatively monopolistic, with productivity gains leading to higher prices.

Is the Prebisch–Singer thesis adequate? Can we arrive at a historical law based on Britain's relatively declining primary product prices for a seven-decade period? If we exclude the depressed prices of the 1930s, the price fall from the 1870s is not really so great. Furthermore, the increase in the British commodity terms of trade shown by the League of Nations data may be partly an artifact of the inadequate measure. The data do not adequately account for qualitative improvements taking place predominantly in manufactured goods. Although there was little difference between a bushel of grain in 1880 and 1938, new and improved manufactured goods were developed during the period. Additionally, international shipping costs fell with the opening of the Suez and Panama canals and the development of refrigeration and steamships. Because international transport rates enter only import prices (measured with the cost of insurance and freight, c.i.f.), but not exports, falling rates would reduce import prices more than export prices. The two factors result in an upward bias in the British terms of trade (Lewis 1952:105–138; Yotopoulos and Nugent 1976:342–345). Yet John Spraos's (1983) careful statistical study for the United Nations shows that, when we adjust for the problems mentioned, the League of Nations data would still indicate a deterioration of primary producers' terms of trade, although by a smaller magnitude than Prebisch and Singer thought.

Figure 17-1 shows a declining trend for the price of *nonoil* commodities relative to exports of manufactures from 1948 to 2001. This has adversely affected the

growth of a number of nonoil primary product exporters, such as Ethiopia, Zambia, Uganda, Togo, Papua New Guinea, Myanmar, Honduras, Panama, Côte d'Ivoire, Bolivia, Nicaragua, Kenya, Madagacar, and Central African Republic (see Chapter 4). Indeed, the U.N. Conference on Trade and Development (2004:82–83, 132) sees a broad association between (nonoil) commodity dependence and extreme poverty among least-developed countries. African countries have especially suffered from this dependence (Collier 2002). (See also sub-Saharan Africa's decline in terms of trade, 1972–1992, in Nafziger, 2006b.)

However, Spraos's figures for Britain's relative primary prices rose between 1939 and 1973, just after the League's figures. Thus, Spraos concludes that although Prebisch and Singer got the direction of changes in the terms of trade from 1876–80 to 1938 right, if we extend the data to 1973, the falling commodity terms of trade for primary products are open to doubt. Pier Giorgio Ardeni and Brian Wright (1992:803–812), however, using a statistical approach that does not assume stationarity of the underlying data, reinforce the validity of the Prebisch-Singer finding both through 1938 and for data extended through 1988.

Are other more complex measures more useful than the commodity terms of trade? As illustrated earlier, if export prices increase 10 percent and import prices 21 percent for a decade, the commodity terms of trade, 1.10/1.21, drop to 0.91. However, if the *quantity* of exports expands by 10 percent for the decade, the **income terms of trade** (the value index of exports divided by the price index of imports) are $(1.10 \times 1.10)/1.21 = 1.00$. This figure means the country has the same export purchasing power as it did a decade ago. Although oil-importing, middle-income countries had a decline in commodity terms of trade, from 1970 to 1980, a rapid expansion in export volume enabled them to increase **export purchasing power** (World Bank 1981i:21). Income terms of trade are also an appropriate measure when the country's export commodities have a large share of the world market (Brazil's coffee and Saudi Arabia's oil), so that export prices depend on export quantum.

The country might be interested in whether it increases the quantity of imports available per factors employed in export production. Assume that output per combined factor inputs increases by 10 percent over the decade. The commodity terms of trade, 0.91, multiplied by 1.10 yields 1.00, the **single factoral terms of trade.** This figure implies that the output of a given amount of the country's productive resources can purchase as many imports as it did a decade ago.

Thus, a country's commodity terms of trade may decline at the same time that export purchasing power and single factoral terms of trade increase.

Although the degree of monopoly may differ between DCs and LDCs, the argument for deteriorating terms of trade depends on the change in, *not* the extent of, monopoly power in primary and secondary production. There is no evidence that industrial monopoly power increases more rapidly than agricultural monopoly power.

The view that LDCs export primary products whose terms of trade are declining and DCs export manufacturers with increasing terms of trade is oversimplified in many ways.

TABLE 17-2. Terms of Trade,[a] 1979, 1989, 1994, 2004 (1970 = 100)

	1979	1989	1994	2004
Developing countries[b]	150	123	117	128
Africa	126	99	84	97
Asia	98	90	92	97
Latin America	140	113	100	107
Middle East	305	233	179	302
Oil-importing developing countries	94	82	81	80
Oil-exporting developing countries	357	256	216	227
Developed countries	93	100	123	123

[a] Commodity terms of trade. A value in excess of 100 in 1979 and an increasing value from 1979 to 1989 or from 1989 to 1994 indicate increases in the terms of trade, while a value below 100 in 1979 and a declining value from 1979 to 1989 or from 1989 to 1994 indicate decreases.
[b] Excludes China 1970–79 but includes China 1979–2004.

Source: Calculated from IMF 1988d:133, 140; IMF 1994d: 145–148; IMF 2003d:201–204; IMF 2004d:214–216.

Charles Kindleberger's evidence (1956) does not support deteriorating long-run terms of trade for *primary product exporters*. He does, however, find that the LDCs are especially vulnerable to declining terms of trade because they cannot easily shift resources to accord with shifting patterns of comparative advantage. Primary-product export concentration, the dependence of LDC primary exports on foreign multinational corporations for processing, marketing, and financing, and limitations on the expansion of processing indicate the LDCs' inability to shift resources with changing demand and technologies. Sub-Saharan Africa, whose terms of trade, 1972–1992, are shown in a figure in Nafziger (2006b), has been plagued by such problems; note that the sub-Sahara's export purchasing power fell even faster than the commodity terms of trade.

Table 17-2 indicates that major exporters of one primary good, crude petroleum, made extraordinary improvements in their terms of trade in the 1970s. In fact, a country's international trade position in oil overwhelmed other factors in determining its direction in the commodity terms of trade. The 1979 terms of trade of petroleum exporters, with the oil price shock of 1973–1974 and the late 1970s' price spike (Chapter 13), were three to four times 1970 levels and those of petroleum-importing countries decreased over the same period (although slightly less than those of DCs). However, the terms of trade for both oil-exporting and oil-importing developing

countries fell in the 1980s and early 1990s, whereas the terms of trade for DCs rose during the same periods.

A single country, such as 19th-century Japan, exporting agricultural and light manufacturing goods, would often be a price taker with substantial scope in expanding export receipts alongside a long-run elastic supply curve. Could not a single primary-producing country today assume that it could expand export volume without adversely affecting price? The World Bank admonishes Third World governments to "get prices right," allowing prices to reach a market-clearing rate, rejecting past policies of setting minimum prices for industrial goods, fixing price ceilings on food, and setting low prices for foreign currency, which discourage primary product exports. However, today this single-country analysis suffers from a fallacy of composition: What is true of the individual case is not necessarily true of all cases combined. Thus, although policies promoting domestic-currency prices favorable to primary-product exporters might help a given country (whose global market share is probably too small to affect world price adversely), the adoption of these policies by a number of LDCs under pressure to improve external balances results in a market glut from increased export volume, which reduces total export receipts when the price elasticity of demand (the absolute value of the percentage change in quantity demanded divided by the percentage change in price) is less than one (inelastic). Inelastic demand can be illustrated by the doubling of cocoa exports (in tons), thereby reducing their prices per ton 75 percent so that total export receipts fall by 50 percent.

Import Substitution and Export Expansion in Industry

Given the slow growth of exports, many LDC governments try to industrialize and improve their international balance of payments by import substitution (replacing imports by domestic industry) and export expansion.

The simplest base for early industrial expansion is producing consumer goods for a market previously created by imports. It becomes more difficult, however, to undertake successive import substitution, which usually involves intermediate and capital goods that require more capital-intensive investments with larger import contents.

Import substitution can be justified on many grounds – increasing returns to scale, external economies, technological borrowing, internal stability, and other tariff arguments already presented – but is subject to the same rejoinders. Studies indicate that most LDCs have carried import substitution to the point where gains to local industrialists are less than losses to consumers, merchants, inputs buyers, and taxpayers. Indeed, India, which emphasized import substitution, generated self-reliant but socially wasteful technology that would have been written off in a more competitive environment (Lall 1985:18).

Research done by the National Bureau of Economic Research (NBER) of 15 LDCs (Krueger 1978; Krueger, Lary, Monson, and Akrasanee 1981) indicate that export promotion is generally more effective than highly protected import substitution in expanding output and employment. NBER empirical data confirm the Heckscher–Ohlin theorem, in which LDCs in early stages of growth are most likely to have

a comparative advantage in exporting labor-intensive goods and importing capital- or skilled-labor-intensive commodities. A strategy that substitutes domestic output for imports, then, emphasizes the production of goods more likely to use considerably more capital per unit of labor. Export promotion includes the following advantages: (1) international competition, which encourages quality control, new products and techniques, and good management, (2) cost economies from increased market size, (3) information provided by DC users can improve export technology and product quality, (4) cost to society is more visible than protection, and (5) efficient firms are not limited by domestic demand growth. Export promotion relies on pricing incentives, such as market exchange rates, export subsidies, and concessional credit, which provide a uniform bias among export activities (Fransman 1986: 75–93).

As an example, during most of the 1980s, Mexico provided incentives for import substitutes and implicitly discouraged export development. South Korea, by contrast, provided virtually no incentives for import substitution while heavily encouraging export activity through capital subsidies, depreciation allowances, and import duty exemptions. From 1980 to 1992, Mexico's real annual growth rates were 1.6 percent in industry and −0.2 percent overall, compared with Korea's 11.6 and 8.5 percents – spurred by scale economies, international competition, price flexibility, and no agricultural and foreign exchange shortages associated with export promotion (Krueger 1978; Krueger, Lary, Monson, and Akrasanee 1981; World Bank 1994i:162–65). Deepak Lal's and Sarath Rajapatirana's later study (1987:189–217) comparing the four export-promoting NICs (Taiwan, South Korea, Hong Kong, and Singapore) to moderately import-substituting Southern-Cone countries (Argentina, Chile, and Uruguay) and Sri Lanka reinforce the NBER findings for the 1970s and 1980s, when the NICs not only grew more rapidly but also recovered more quickly from the shocks of oil price rises and world recession. Chow's econometrics (1987:155–163) demonstrates that export growth promotes both industrial and overall economic growth in the NICs.

Even for a highly populated country like India, import substitution industrialization is limited, because of "narrow domestic markets, high costs and technological backwardness. . . . As witnessed in East Asia, . . . exports facilitated learning through economies of scale and increasing returns, while foreign markets became a source for knowledge acquisition" (D'Costa 2003b:3). After decades of lost opportunity for export expansion, India, which only stressed international competitiveness since the early 1990s, is still years behind most Asian nations.

The transition from import replacements to export expansion (and free trade) is difficult. It takes time to expand capacity, reallocate resources, acquire physical inputs, develop skills, upgrade procedures, and learn by doing before new competitive export industries based on comparative advantage can emerge. We can expect export expansion to be slow, as most potential exporters have to produce for a domestic market first (Linder 1961; Preusse 1988:883–897).

Inward-looking policies have been costly to LDCs, increasing their dependence on just a few exports and on the protection and monopoly power of foreign capital.

TABLE 17-3. Tariffs Hurt Exports – but Less so in the 1990s Than in the 1980s
Cost Penalties on Exports Associated with Import Tariffs (percent)

	Brazil		China		India		Malawi	
	1986	1997	1986	1997	1986	1997	1986	1997
Agriculture	−43	−5	−28	−15	−14	−5	−9	−7
Agricultural processing	−83	−28	−72	−54	−64	−39	−20	−16
Resources	−45	−6	−14	−7	−9	−3	−6	−5
Labor-intensive manufacturing	−72	−17	−54	−35	−45	−23	−18	−15
Capital-intensive manufacturing	−79	−22	−46	−28	−60	−35	−11	−9
Services	−31	−3	−26	−14	−16	−6	−5	−4

Note: Effective rate of protection applying to exporters is the proportional change in returns to value-adding factors resulting from tariff protection.

Source: World Bank 2004f:77.

Moreover, protection reduces the domestic-currency price (peso or shilling) of foreign exchange, thus discouraging exporters. Import restrictions increase local demand for import-competing sectors' production and use of domestic resources, increasing the price of domestic inputs and foreign-exchange (dollar) price of domestic currency, thus reducing exports.

Table 17-3 shows the gains to LDCs from reduced protection and lower cost penalties on exports, from the 1980s to the 1990s and early years of the 21st century. World Bank (2004f:77) data show how declining tariffs by Brazil, China, India, and Malawi in the 1990s reduced input prices for exports and also prevented the price of foreign exchange from staying too low, at an overvalued rate that discouraged exports.

DeRosa (1991:42–45) argues that this fall in exports matches the protection-induced fall in imports in the sub-Sahara. In the 1980s, the mean tariff, customs surcharge, surtax, and stamp tax, other fiscal charges, and taxes on foreign-exchange transactions in sub-Saharan countries were 33 percent of value. Because nontariff barriers (quantitative restrictions, foreign-exchange restrictions, minimum price systems, and state trading monopolies) affect 81 percent of tariff line items, the total protective and exchange-rate distortions caused by the sub-Sahara's import barriers were substantial. DeRosa estimates that sub-Saharan Africa loses 15–32 percent of its potential export revenue because of import protection. Emphases on export expansion activities have the following advantages: (1) competitive pressures tend to improve quality and reduce costs, (2) information provided by DC users can improve export technology and product quality, (3) cost economies develop from increased market size, and (4) increased imports of productive inputs result from the greater availability of foreign-exchange earnings (Fransman 1986:75–93).

The next section shows how much industrialization via global production sharing has increased in LDCs reducing their tariffs. However, LDCs at the periphera of this globalization, most in sub-Saharan Africa, are still in a rut, having made few policy changes to increase their competitiveness and their attractiveness for foreign direct investment.

Global Production Sharing and Borderless Economies

A continuing theme in the old development textbooks was that LDCs are exporters of primary goods and importers of manufactures. This view is outdated for most LDCs, but not for 20 poor export performers whose real exports fell from 1981 to 2001 (World Bank 2004f:69). The 20 were primarily from Africa and Central America, heavily dependent on one or two primary products, and with high export commodity concentration ratios (see Chapter 4).

For most LDCs, however, the situation has drastically changed since the 1980s, with low-income countries' manufacturing exports as a percentage of total exports rising from about 20 percent in 1981 to almost 80 percent in 2001, and from 24 percent in 1981 to almost 70 percent for middle-income countries (Figure 17-2). Even without China and India, the rise in manufactures is substantial. The most dynamic export growth in all regions, including Africa, has been in labor-intensive manufacturers (World Bank 2004f:xiv).

A major explanation for the manufacturing export expansion is the reduction in protection, especially in industries a part of a global production network. Reduced LDC protection, especially on inputs and resources, has allowed a number of LDCs to move up the value-added ladder, with low-income countries expanding their exports of low technology exports and middle-income countries' exports increasing in the level of their technology (World Bank 2004f:65–73).

In Chapter 15, we discussed the role of multinational corporations in an integrated global economy. Although Pakistan, Bangladesh, Burma, Laos, Cambodia, and most of sub-Saharan Africa (Figure 17-3) have received only minimal benefits from this integration, a number of East and Southeast Asian economies and, since the 1990s, India are integrated into MNC production shifts in the product cycle. The rapid growth in international trade and FDI has reflected the expansion of **global production networks** (GPNs), the major factor contributing to LDCs' moving up the value-added ladder. A significant percentage of international trade and foreign investment has shifted from the production and exchange of final consumer goods to the production and exchange of parts and components, making it difficulty to identify the nationality of many products. Figure 17-4 indicates the proportion of countries' value added in producing a U.S. automobile. Compared to 1921, when Henry Ford's Model T was produced with one assembly line, and the 1950s, when virtually all components of a U.S. automobile were produced within the country, in 1998, the U.S. comprises only 37 percent of the car's value added (World Bank 2003f:55; World Bank 2004f:66–69). Even during the early 1990s, a Pontiac Le Mans bought in the United States embodied routine labor and assembly operations in South Korea,

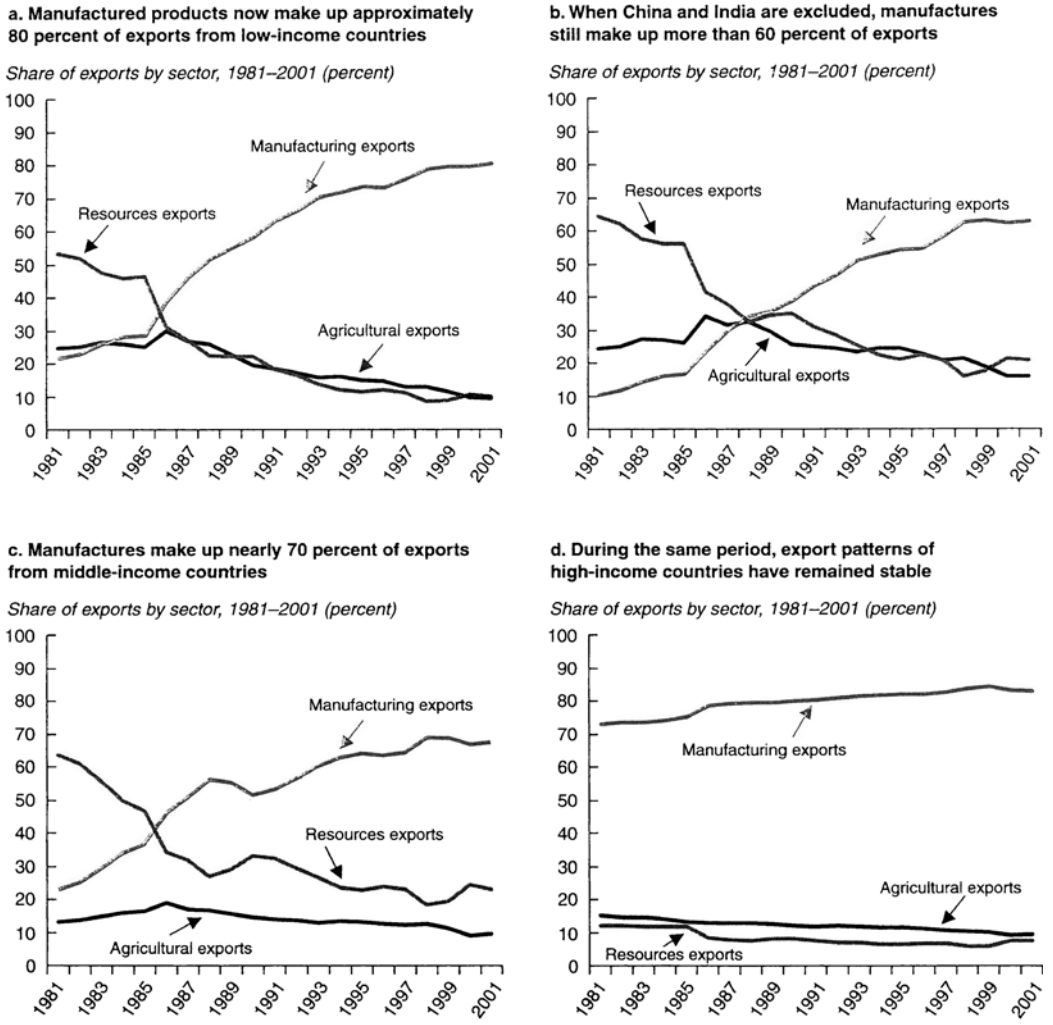


FIGURE 17-2. Developing Countries Have Become Important Exporters of Manufactured Products. *Source:* World Bank 2004f:65.

advanced components (engines, transaxles, and electronics) from Japan, styling and design engineering from Germany, small components from Taiwan, Singapore, and Japan, advertising and marketing services from Britain, and data processing from Ireland and Barbados (Reich 1991:113).

Two indications of the increase in GPNs are the increase in the percentage share of world trade accounted for by imported inputs embodied in exports and the ratio of imported to total intermediate inputs in manufacturing. Figure 17-5 shows the increases in these ratios in France, the United Kingdom, and the United States from 1974 to 1993. In addition, the share of U.S. MNCs affiliates' import of intermediate imports in total sales increased significantly in manufacturing, industrial machinery and equipment, electronics, and transportation equipment from 1982 to 1998 (World Bank 2003h:56).

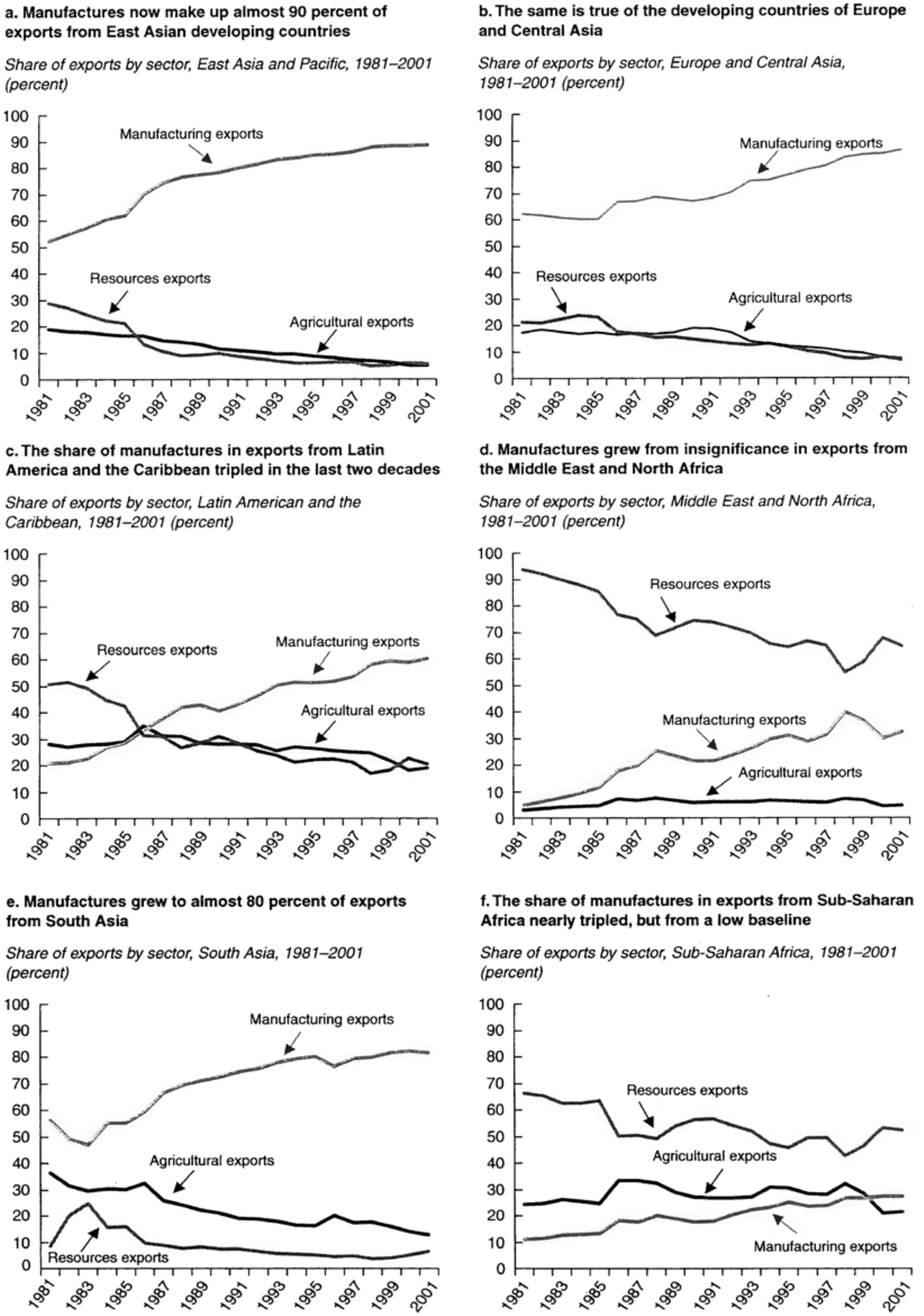


FIGURE 17-3. Manufactures Account for a Growing Share of Exports in All LDC Regions.
Source: World Bank 2004f:67.

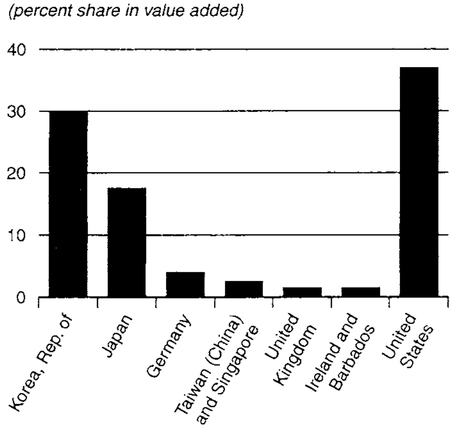


FIGURE 17-4. U.S. Cars Are Produced in Many Countries (percent share in value added). *Source:* World Bank 2003f:55.

Might the increased LDC exports of manufactures only reflect the increasing number of steps in the value-added ladder? No. Table 4-1 shows that each of low-income countries and middle-income countries has a higher percentage of GDP value added in industry than high-income countries do.

Rapid technological progress in transport, communications, electronics, and data processing has increased flows of FDI and cross-border production network. Cheaper and faster telephone, fax, Internet, and cargo connections, and improved ability to process and analyze data, using electronic interchange, have facilitated global networks. Lower tariffs are also an important contributor to the size of intermediate inputs relative to total sales of U.S. affiliates, a measure of GPN activity. During the decade before the accession of eight East and Central European countries into the original E.U. 15 in 2004, the exports of processed goods from East to West increased rapidly. In addition, after the formation of NAFTA in 1994, Mexico's maquiladora industry grew spectacularly (World Bank 2003h:57–58).

Among emerging nations, Mexico, Thailand, Malaysia, China, and high-income Korea comprise 78 percent of the sales of parts and components to DCs. The

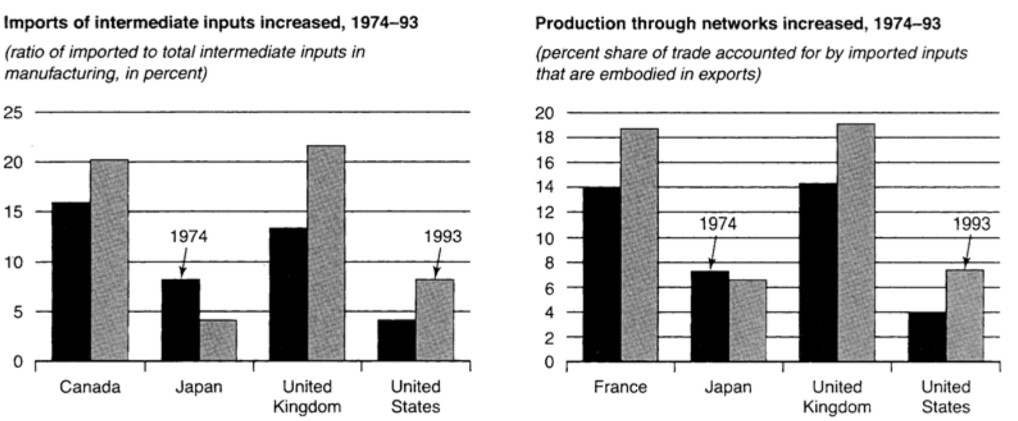


FIGURE 17-5. Cross-Border Networks Capture Increasing Shares of Production and Trade. *Source:* World Bank 2003f:56.

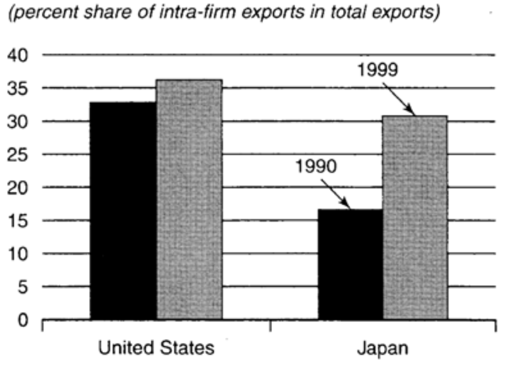


FIGURE 17-6. Increase of Intrafirm Exports in Total Exports. *Source:* World Bank 2003f:59.

emerging–DC link can involve ownership, arm's length transactions (where sales are in organized markets), and supplier–purchaser relationships (World Bank 2003f:61–62). To maintain control over technology, FDI in a subsidiary is the preferred choice, reflected in the share of intra-firm exports in the MNCs' parents' exports, especially in Japan (Figure 17-6).

GPNs enable production to be broken into discrete stages, each performed in countries best suited for the stages. Frequently, LDCs undertake production activities requiring low-skilled labor, a low-tech component of a high-tech good. However, the LDC can improve productivity through learning by doing and expanding productive firms. Both China and India have doubled global production sharing from 1980 to 1998, as indicated by the doubling of imported inputs into a unit of export. The expansion of duty-free access of imported intermediates in the production of exports has facilitated participation in GPNs for both countries.

China has favored imported inputs in the labor-intensive production of manufactures. Indeed, processing of imported intermediates comprise about half of total exports. Both China and India have expanded the range of products exported. With export growth, both countries experienced only a moderate decline, if any, in terms of trade in the 1990s and early part of the 21st century. Moreover, both countries, particularly China have negotiated favorable joint ventures and technology transfer agreements, enabling learning gains to be captured in domestic enterprises independent of the foreign MNC (World Bank Group 2004:69–77).

In her discussion of the U.S.'s trade deficit, Catherine L. Mann (1999:41), an analyst at the Institute for International Economics, contends that

> The United States has the comparative advantage in producing and exporting certain parts of the production process (the high-value-added processor chips, the innovative and complex software, and the fully assembled product), but has relinquished parts of the production process to other countries where that stage of processing can be completed more cheaply (memory chips, "canned" software, and most peripherals). The United States cannot have comparative advantage in the export of the final product if it cannot combine its own comparative advantage in the initial ingredients with the comparative advantage of other countries applied to the production process at critical stages. Comparative advantage thus can be a function of trade itself.

Indeed, Mann estimated that "U.S. companies were able to reduce the cost of computers and communications equipment by about 10% to 30% by making the equipment in factories around the world. That lifted U.S. economic growth by about 0.3 percentage point a year between 1995 and 2002, as more companies made use of information technology. She expects similar economic gains if computer software is produced in an internationally efficient fashion" (Davis 2004:A1).

The McKinsey Global Institute contends that outsourcing by the United States of jobs to India benefits both economies. For each $1 of U.S. spending sent offshore, the United States receives $1.12–1.14 net benefit: from savings to U.S. investors and customers, imports of U.S. goods and services by providers in India, transfer of profits by U.S.-based providers back to the United States, and the value from U.S. labor reemployed (Economist 2003i:67–69).

Since the depreciation of the U.S. dollar relative to the yen beginning in late 1985, and the relative increase of domestic costs because of cartels and informal protection, Japan's efficient export sector has sought export platforms abroad, first in Asia, then the United States, the European Union, and Latin America. Japanese companies have tried to retain their international price competitiveness in manufacturing products by organizing a borderless Asian economy. This borderless system encompasses a new international division of knowledge and function that selects the more sophisticated activities, including R&D-intensive and technology-intensive industries for the newly industrializing countries (NICs), South Korea, Taiwan, Hong Kong, and Singapore, while assigning the less sophisticated, labor-intensive, low value-added production and assembly, which use more standardized and obsolescent technologies, to China and the ASEAN four, Indonesia, Malaysia, the Philippines, and Thailand.

According to Japanese official definitions used in the early 1990s, Japanese foreign direct investment does not necessarily depend on majority ownership, but can involve only 10 percent ownership if the Japanese corporation either has at least one part-time director, furnishes the technology, provides financial assistance, executes an exclusive agency agreement, or purchases products, raw materials, or parts from the production facility abroad. Moreover, the Japanese company does not even need any equity holding to be involved in foreign direct investment if the firm provides loans exceeding one year to a firm abroad whose management is influenced by the Japanese corporation through long-term contract (Shojiro 1992a:5–48). Steven Schlossstein (1991:32, 152) uses the metaphor of a flying geese formation of the East and Southeast Asian economies, with Japan at the lead, the NICs toward the front, and the ASEAN four close behind.

Sony, an example of this global seamless network, has factories for audio, television, and video products and parts in Taiwan, Korea, Thailand, Malaysia, and Singapore, the major distribution warehouse in Singapore, and linkage of these units on-line with Japanese, U.S., European, and Southeast Asian companies as well as important cooperating firms (Shojiro 1992b:37–38).

Despite the advantages to the ASEAN four, the borderless economy contributes to a widening gap between modern branches of industry, such as electronics, and

traditional branches within the country. To be sure, ASEAN labor learns how to produce inputs and parts to precise specifications for Japanese high-tech industry. However, the ASEAN four have left technical details to their foreign business partners, so that these countries lack the ability to adapt and innovate, which is concentrated in Japan and the NICs.

Another factor limiting ASEAN's gains from the borderless system is the fact that Japanese (and other DC) MNCs raise the lion's share of their funds from the local capital market. The most successful of the South and Southeast Asian countries are Thailand and Malaysia. Both countries have attracted high-technology industries such as computers, electronics, and semiconductors as a part of the Japanese-directed borderless economy. Indeed, in 1993, Malaysia was third to the United States and Japan in producing semiconductors (primarily for Japanese companies, such as Hitachi, Toshiba, and NEC) and the world's leading exporter of computer chips. But both Thailand and Malaysia pay relatively little attention to bottom-up development of indigenous manufacturing techniques. The development of indigenous technological capability requires, similar to Meiji Japan, a conscious and aggressive strategy of technical innovation (Schlossstein 1991:232; Morris-Suzuki 1992:145–148; Shojiro 1992a:158–163; Takeshi 1992:97; World Bank 1993a:238–239).

Malaysia and Thailand's positions in an international division of labor (as a part of Japan's borderless economy since the mid-1980s) seem to be based, as in late-19th-century Japan, on near-market exchange rates that expedite labor-intensive exports. Malaysia and Thailand have enjoyed limited prosperity while, however, sacrificing their economic autonomy to less-sophisticated, labor-intensive, low value-added production in a Japanese-organized division of knowledge. However, Takeshi Aoki (1992:73–110) and Tessa Morris-Suzuki (1992:135–152) contend that the short-run prosperity from integration within the Japanese-led trading system came at the expense of the technological learning and skill acquisition essential for rapid growth in the late 1990s and early 21st century. Aoki mentions the inadequate spending on R&D, the lack of indigenous mastery of industrial technology, the few Malay entrepreneurs, the sparse linkages within the industrial economy, and the substantial shortage of skilled workers, technicians, and engineers as major obstacles to Malaysia's future growth. For Morris-Suzuki, some major barriers to Thailand's prospective development are the concentration of technological transfer within multinational enterprises rather than local firms, the lack of innovation and adaptation by indigenous personnel, the falling R&D capability, the poor communications facilities, and the low secondary-school enrollment rates. Indeed, Malaysia and Thailand have emphasized peripheral intermediation in technologically complex industrial production rather than indigenous innovation and technology generation in less complex industry that provides more scope for gains from learning. Ironically, for Malaysia and Thailand to follow the early Japanese model means less dependence on technology, capital, and imports from Japanese multinational corporations and more indigenous technological innovation.

Still, participation in the DC-dominated global production networks has contributed to independent technological innovation in Asian LDCs, such as China,

India, Malaysia, and Thailand. In some instances, China, having begun with the lower value-added steps, has decided to produce the highest stage in China or outsource higher stages to DCs or LDCs. Also, in India, software companies have, with technological learning, expanded exporting independent of MNCs, and have acquired firms or established subsidiaries in the United States, often with Indians and Indo-Americans with substantial software and electronic experience.

DC Import Policies

The **World Trade Organization (WTO)/General Agreements on Tariffs and Trade (GATT) system** administers rules of conduct in international trade. GATT, founded in 1947, continues as the umbrella treaty on trade in goods, with WTO, established in 1995, until WTO becomes all encompassing.

WTO/GATT applies only to economies where market prices are the rule, thus denying membership to countries where the state is the predominant international trader. China's post-1979 economic reforms enabled it to become a WTO member in 2001. Russia's accession to the WTO is expected in the middle of the first decade of the 21st century.

Under WTO/GATT, LDCs have called for DCs to remove or reduce trade barriers against third-world exports, especially manufactured and processed goods. The World Bank (1988i:16) estimated the cost of DC protection against LDCs ranges from 2.5 percent to 9 percent of their GNP. In 2004, this protection was almost as costly; the World Bank Group (2004:xxviii–xxx, 38–54) sees trade liberalization in the **Doha Development Round** (2001–) as the major plank to reach Millennium Development Goals to reduce poverty (Chapter 2).

For African industrial export expansion to be successful, DCs must reduce protectionist policies. If DCs had dropped manufacturing tariffs on Africa in 1989 by 5 percentage points, an IMF simulation model (1990) estimates the following effects in the early 1990s:

Because DC progress in reducing tariffs since the 1990s has been limited, the size of gains from trade may still be as substantial as this table.

Average

	1990	1991	1992–95
current account balance/export	+1.0%	+0.8%	0%
debt/export	−9.2%	−11.3%	−9.5%
debt service/export	−1.5%	−1.7%	−1.4%
real GNP	+1.2%	+1.6%	+1.6%
export volume	+2.6%	+3.4%	+3.3%
import volume	+3.0%	+4.1%	+4.5%

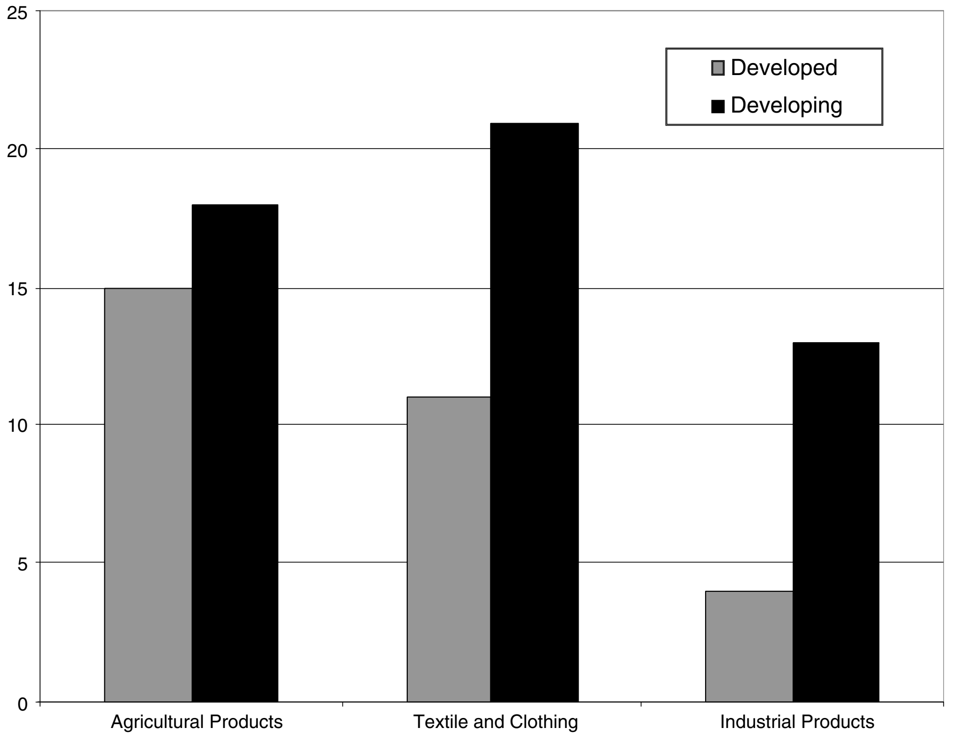


FIGURE 17-7. Post–Uruguay Round Actual Ad Valorem Tariff Rates (%). *Source:* Finger and Schuknecht 1999.

For LDCs, industrial comparative advantage may lie in the processing of natural-resource-based goods. For example, Pakistan might export textiles and yarn, Zambia might export refined copper, and Tanzania might export coffee essences or extracts. The Tokyo (1974–79) and Uruguay (1986–94) Rounds tariff cuts negotiated under GATT reduced DC tariffs to an average of 5–6 percent of value (World Bank 2003f:57) ranging from 15 percent in agriculture and 11 percent in textiles and clothing to 4 percent in industrial products (Figure 17-7). Yet these rates are misleading. First, tariff rates were much higher on labor-intensive goods in which LDCs are more likely to have a comparative advantage. Second, the effective rate of protection, a measure of protection at each processing stage, is usually higher than the nominal rate for manufactured and processed goods, as DC tariff rates rise as imports change from crude raw materials to semimanufactures to finished goods.[9] Tokyo Round effective protection on LDC commodities according to processing state was 3 percent on stage 1 (the raw material, for example, raw cotton), 23 percent on stage 2 (low-level processing, as of cotton yarn), 20 percent on stage 3 (high-level processing, as of cotton fabrics), and 15 percent on stage 4 (the finished product, for example, clothing). DC effective rates of protection, which are highest at low

[9] See Edwards (1993:1362–1363) for examples that show that the degree of protection granted to manufacturing value added was significantly higher than suggested by data on nominal import tariffs.

levels of processing where poor countries concentrate their industrial activities, have encouraged importing raw materials at the expense of processing, especially at lower levels. Fifty-four percent of DC imports from LDCs are at stage 1, 29 percent at stage 2, 9 percent at stage 3, and 8 percent at stage 4. Zambia, which had the largest nonagricultural share (84 percent) of 1992 GDP in the low-income sub-Sahara and a high elasticity of employment growth with respect to nonagricultural output growth, expanded from consumer goods to intermediate and capital goods. But high effective protection rates on processing have diverted Zambia's industrial growth from exports to import substitution. Indeed, until the late 1980s, MNCs with subsidiaries in Zambia, Zaire, Botswana, and Namibia built most of the fabricating and processing plants in South Africa and in the West. High protection rates on processing have also diverted India, Pakistan, Sri Lanka, and Indonesia, each of which has a nonagricultural sector with a share in 1992 GDP of at least 68 percent, from exports to import substitution. GATT's **Uruguay Round** negotiations, 1986–94, which reduced overall DC tariffs to 4 percent, resulted in modest liberalization in the trade of industrial goods; yet high effective rates of tariffs may frequently still remain at stages 2 and 3, and nontariff barriers may continue (World Bank 1994b:166; UNCTAD 1994:x).

Suppose an industrialized country has no tariff on raw cotton imports but a 5-percent tariff on cotton yarn imports. Assume raw cotton sells for $600 per ton and cotton yarn for $700 a ton, with $100 value added by the cotton yarn industry. The 5-percent nominal cotton yarn tariff (or $35), although only a small fraction of total sales value, is a 35-percent effective tariff rate on the $100 value added. It allows the domestic, DC, cotton yarn producer to be much less efficient than the foreign producer and still retain the home market. World Bank (1981i:22–34; 1987i:136) data indicate that although the effective protection rate of post–Tokyo Round tariffs was 2 percent for raw materials, it was 15–20 percent for processed and manufactured products.

Other disturbing developments have been the trade restrictions – the **Multifiber Arrangement (MFA)**, "voluntary" export restraints, trigger price arrangements, antidumping duties, industrial subsidies, and other **nontariff barriers (NTBs)** – introduced in the 1970s, 1980s, and 1990s. In 1987, DC use of NTBs affected about 25 percent of nonfuel imports from LDCs compared to 21 percent of those from other DCs. Indeed, in the late 1980s, 80 percent of the exports of Bangladesh, one of the poorest countries in the world, were subject to DC nontariff barriers. The MFA, established in 1974 and made increasingly restrictive in 1978, 1982, and 1986, allowed bilateral agreements (often arising from economic pressures brought to bear by rich countries) and unilateral ceilings on any product category to limit "disruptive" textile and clothing imports (World Bank 1987:136–137; Carrington 1993:A10); under Uruguay Round agreements, MFA was phased out in 2005, expanding sales by China, previously under quota, or countries that signed multilateral agreements (for example, the U.S.'s African Growth and Opportunity Act, or AGOA, 2000–08, that provides duty-free access to apparel and other goods for 37 countries).

Since 1989, the U.S. Super 301 provision directed the president to penalize "unfair traders." Under this authority, the United States threatened trade sanctions against Brazil for import licensing and India for foreign investment and insurance company restrictions. For Columbia University economist Jagdish Bhagwati (1992:A14), the U.S. threat represented "aggressive unilateralism."

Trigger price mechanisms, such as the one the United States uses to prevent "unfair" price competition from steel imports, require foreign importers to pay antidumping duties on prices determined to be below domestic production cost. Subsidies, used widely by Norway, Belgium, France, and the United Kingdom, have the same protective effect as tariffs.

The WTO/GATT recognizes the sovereign right of members to impose new trade restrictions to counter dumping. The substantial increase in the incidence of antidumping rules from 1995 to 2002 has set back trade liberalization substantially (World Bank 2004b:84).

Since the early 1970s, the DCs have adopted a **generalized system of tariff preferences (GSP)**, by which tariffs on selected imports from LDCs are lower than those offered to other countries. The GSP of the United States, established in 1976, grants duty- and quota-free access to eligible products and countries. The United States graduated the four Asian tigers (Taiwan, South Korea, Hong Kong, and Singapore) from GSP in 1989. Other countries not eligible include China, Malaysia, and countries deemed to have aided international terrorism or that do not comply with environmental, labor, and intellectual property standards (World Bank 2004b:213). Textiles, apparel, footwear, and many farm products are not eligible.

The United States provides more liberal preference for the Caribbean Trade Preference for 24 countries; the Andean Trade Preference for Bolivia, Colombia, Ecuador, and Peru to reduce drug production and trafficking; and the African Growth and Opportunity Act. AGOA provides duty-free and quota-free market access for virtually all products, including apparel made in African from U.S. yarn and fabric (ibid.).

The European Union's GSP is available to all LDCs, including China. Thirty-six percent of tariff categories receive reduced tariffs and 32 percent are duty free (ibid.).

From 1975 to 2000, the Lomé conventions implemented the European Union's GSP toward as many as 70 African, Caribbean, and Pacific (ACP) countries. The conventions allowed freer access to the European Union for many ACP products, mechanisms for stabilizing foreign exchange earnings from certain commodities and minerals, and a channel for E.U. aid. In 2000, 78 ACP countries, including 41 least-developed countries, signed the Cotonou agreement, under which trade benefits to the ACP were more generous than the GSP but more limited than Lomé. Ironically, the Uruguay Round, although beneficial to LDCs because of the lowered trade barriers against their exports, resulted in the displacement of African exports in E.U. markets by usually more affluent Asian competitors (Hertel, Masters, and Elbehri 1998: 208–236).

Preferences for LDCs have not been reliable, frequently have been removed, and have diverted exports from LDCs denied access. For example, when least-developed

countries receive preferences, LDCs with three-quarters of the world's poor living on no more than $PPP1 per day do not benefit. Also some LDCs may not enter eligible markets because of rules of origin (to prevent transshipment or reexport of goods produced in noneligible countries) and administrative and paperwork requirements. Moreover, the top nine beneficiaries of U.S. GSPs – Thailand, Indonesia, India, Philippines, Venezuela, South Africa, Russia, Turkey, and Chile – are mostly middle-income countries. Furthermore, DCs rarely grant substantial preferences in sectors in which LDCs have the largest comparative advantage. All in all, GSPs' benefits are modest (World Bank 2004b:xv, 209–216).

Cline (2004:xiv, 21–22) calls for DCs to provide "immediate free entry for imports from 'high risk' low-income countries" (highly indebted poor countries, least-developed countries, and sub-Saharan Africa). The poverty intensity of DC imports from these countries is high, with 60–70 percent of imports from the $2/day poor (33 percent from LDCs generally), implying that eliminating DC trade barriers could do more than anything else to reduce poverty.

Expanding Primary Export Earnings

The Organization of Petroleum Exporting Countries (OPEC) was fairly successful in the 1970s in maintaining prices and limiting output (Chapter 13). Here we do not concentrate on oil but on other primary products, the major focus of those economists concerned about LDC export expansion.

STAPLE THEORY OF GROWTH

The export of staples, such as primary or primary-product-intensive commodities, is sometimes a major engine of growth. The **staple theory of growth** was first used to explain the association between expanding primary production (wheat) and economic growth in late-19th-century Canada (Innis 1933; Watkins 1963:141–158). Other examples of staple exports stimulating growth include English textiles (the late 18th century); U.S. cotton (the early 19th century) and grain (after the Civil War); Colombian coffee (the last half of the 19th century); Danish dairy products (the last half of the 19th century); Malaysian rubber and Ghanaian cocoa (first half of the 20th century); and Korean, Taiwanese, and Hong Kong textiles (after 1960). The recent examples of Bangladesh jute, Sri Lankan tea, Zambian copper, and Cuban sugar, however, suggest that staple export expansion does not necessarily trigger rapid economic growth.

INTEGRATED PROGRAM FOR COMMODITIES

Exporters of primary products other than minerals and petroleum frequently face *short-run* demand and supply inelasticities and thus greater price (Chapter 4) and income (price multiplied by quantity) fluctuations than manufactures exporters. In 1976, in the face of OPEC success, low foreign aid, and the perception that commodity markets were biased against LDCs, UNCTAD proposed an **integrated program for commodities** – consisting of output restrictions or export quotas, international

buffer stocks, a common fund, and compensatory financing – to stabilize and increase primary commodity prices and earnings. Emphasis was on 10 core commodities – cocoa, coffee, tea, sugar, cotton, jute sisal, rubber, copper, and tin – chosen on the basis of wide price fluctuations, large shares in LDC primary exports, or high export concentration in LDCs. Primary-product commodity prices are more volatile than prices of manufactures (World Bank 1993e:58; World Bank 1994i:62; World Bank 2002c:18).

Cartels. The Organization of Petroleum Exporting Countries (OPEC) is a **cartel** whose members have agreed to limit output and fix prices. During most of the 1980s and 1990s, OPEC was not effective as a cartel.

The number of primary commodities for which collusion would be effective or feasible is small. The prime candidates for a successful price-raising cartel appear to be the tropical beverages, coffee, cocoa, and tea, if action were taken to avoid substitution among them. Even though there are competitive threats from coffee grain mixtures and cocoa substitutes, these three beverages have long-run import demand inelasticities. When demand is inelastic, supply reductions increase the price and total revenues. The long gestation between new planting and production contributes to high prices spurring increased investment and subsequent oversupply followed by prolonged periods of low prices (World Bank 1994i:52). The major difficulties for a beverage cartel controlling supply would be disagreements between traditional and new producers about market shares, and the evidence that the major beneficiaries of such a cartel would be middle-income countries.

The Danish economist Karsten Laursen (1978:423–435) argues that sugar, rubber, fiber, and metal cartels are not likely to increase prices because the *long-run* demand elasticity for the *imports* of these goods is high, because potential substitutes are many.

Buffer stocks. Some international agreements among commodity producer governments provide for funds and storage facilities to operate a **buffer stock** to stabilize prices. The buffer stock management buys and accumulates goods when prices are low and sells when prices are high to maintain prices within a certain range.

A 1975 U.N. General Assembly resolution asks for buffer stocks to secure more "stable, remunerative, and equitable" prices for LDC exports (Survey of International Development 1975). There are, however, several major problems with such a program.

First, because of overoptimism or pressure from producer interests, buffer stock management often sets prices above long-run equilibrium, and stocks overaccumulate.

Second, the costs of storage, interest, and (for some commodities) spoilage are high. Laursen estimates that the annual costs for buffer stocks for the ten core commodities, $900 million, would exceed the gains to producers ($250 million) and consumers ($75 million) by more than $500 million.

Third, the objective of commodity stabilization is not clear. Stability may refer to international commodity prices, producers' money income or real income, export earnings, or export purchasing power. Stabilizing one of these variables may sometimes mean destabilizing another. For example, price stability destabilizes earnings if demand is price elastic.

Fourth, by reducing risk, price stability may intensify competition and increase investment, decreasing the long-run equilibrium price. By contrast, price stability, especially in jute, sisal, cotton, and rubber, may prevent consumers from seeking synthetic substitutes (Laursen 1978:423–435; Meier 1980:312).

Chapter 15 mentioned the abandoned E.U. and limited IMF compensatory funds for primary exports.

Agricultural Protection

The model of Mary Burfisher (2003:xi–xiii) and her colleagues indicates that eliminating global agricultural policy distortions, mainly tariffs and subsidies, would result in an annual world static welfare gain of $56 billion or about 0.2 percent of global GDP. European Union policies account for 38 percent of distortion, the United States 16 percent, and Japanese and Korean 12 percent.

As Figure 17-7 indicates, agricultural tariffs in DCs are higher in DCs than industrial tariffs. But in addition to these border barriers (tariffs and quantitative restrictions), protection also includes production-related subsidies. Taken together, in 1999–2001, protection for farm goods in the OECD was 48.5 percent, with 29.6 percent for the United States, 56.0 percent for the European Union, and 152.9 percent for Japan (Table 17-4). In 2001, export prices for U.S. wheat, corn, and rice were 58, 67, and 77 percent of their costs of production (World Bank 2004b:126, citing Watkins 2003).

To illustrate, if OECD wheat is subsidized at 50 percent, then for every $30 a ton for wheat (about $4 a bushel), the OECD farmer gets a cost cushion that allows her a cost of production of $50 compared to $30 cost a ton (transport excluded) in, say, Morocco. Figure 17-8b shows how subsidies and high domestic prices of wheat encourage production and reduced net imports in 1974 to net exports in the 1990s.

World trade in cotton is so severely distorted that in 2004, the WTO issued a preliminary ruling stating that the U.S. subsidy to producers violates international trade rules. In 2001–02, the United States supported producer prices at 91 percent higher than the world market price. Oxfam (Watkins and Sul 2004), a U.K. development, relief, and advocacy agency, estimates that Mali lost $43 million in cotton export revenue in 2001, 16 percent more than U.S. aid the country received in that year! In 2001–02, 25,000 U.S. cotton farmers (10 percent of those raising cotton) received $3 billion in subsidies, equivalent to the entire economic output of Burkina Faso, where two million people depend on cotton for their livelihood (*World Bank Development News,* July 11, 2003). Simulations indicate that full liberalization (the European Union also subsidizes cotton) would increase world prices 13 percent and world trade by 6 percent in 10 years. Cotton exports by West Africa (Mali, Burkina

TABLE 17-4. Total Producer Support of Farm Prices (estimate) Percentage of Farmgate Prices Attributable to Border Protection and Direct Subsidies, 1986–2001

	Total producer support (estimate[a])		
Area	**1986–88**	**1995–97**	**1999–2001**
OECD	62.5	41.5	48.5
European Union	75.8	48.8	56.0
Japan	162.1	144.7	152.9
United States	34.3	14.9	29.6
Eastern Europe	63.6	13.5	17.9
Australia and New Zealand	10.6	6.8	4.0
Other countries	64.2	55.4	58.5
Other industrial[b]	238.1	190.0	219.7
Other developing[c]	37.8	46.1	50.2

[a] The denominator is total value of production at farm gate less market price support (both estimated at world prices).
[b] Includes Norway, Switzerland, and Iceland.
[c] Includes Korea, Turkey, and Mexico.
Source: World Bank 2004f:121.

Faso, and Benin) would increase by 13 percent (World Bank 2004f:129), reducing rural poverty substantially. Leslie Small (2004) estimated that full liberalization would increase GDP per capita in seven West African cotton dependent countries (Benin, Burkina Faso, Central African Republic, Chad, Mali, Niger, and Togo) by 14 percent. The combined GDP increase for the seven countries is double the subsidy the United States paid its cotton farmers and six times the total aid the countries received in 2001.[10]

Figure 17-8a shows the effect of increasing OECD support to sugar producers (e.g., $6.4 billion in 2001) on production and trade, 1965 to 2001. Consequently, the world price was below production costs of some of the most efficient LDC sugar producers, destroying many farmers' livelihoods. However, if sugar subsidies were abolished, the losers would not just be the rich, as ACP sugar farmers that receive E.U. preference would also be hurt badly (World Bank 2004f:127–129) if others enjoyed a "level playing field."

For DCs, the World Bank (2004f:127) recommends decoupling agricultural support from production decisions. In 1992, the European Union replaced its price supports with direct payments. In 1996, the U.S. farm bill paid farmers based on historical data rather than production, contributing to plummeting world prices that affected LDC farmer livelihoods and U.S. farm incomes, pressuring the U.S.'s 1999 reintroduction of payments based on production. Many other countries, complaining

[10] The competition to West African cotton by other LDC cotton producers from full liberalization is understated in Small's work.

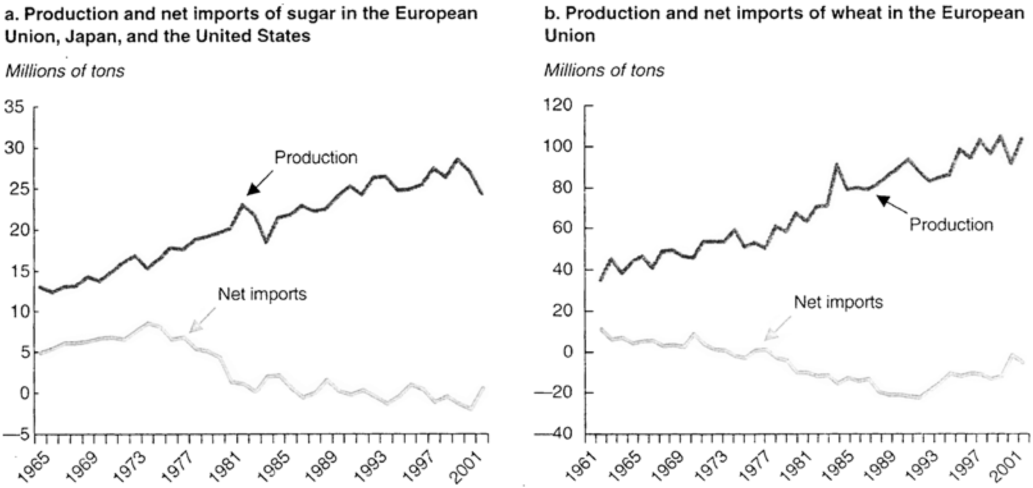


FIGURE 17-8. High Protection of Sugar and Wheat Has Increased Domestic Production and Reduced Net Imports. *Source:* World Bank 2004f:128.

about U.S. dumping and unfair trade, also abandoned the decoupling of farm support (ibid.; Ray et al. 2003).

The World Bank (2004f:127) recommends that government make a one-time unconditional payment to all farmers or those deemed to need compensation, helping farmers adjust to free markets. Failing that, governments need to clearly define program eligibility and put a time limit on payments. These Bank recommendations have not been palatable to the United States and many other countries, making progress on the agricultural agenda at Doha doubtful.

But we should not only focus on DC agricultural protection. A simulation by World Bank economists (1976i:122–132, 144) indicates that LDCs, whose trade barriers are biased against other LDCs' agricultural goods, would realize even much larger efficiency gains by free agricultural trade within the developing world than by free farm trade between DCs and LDCs.

Trade in Services

With globalization, more labor services have entered the international marketplace. During the last three decades, the United States has had a persistent comparative advantage and surplus in the trade of services and financial assets (Mann 1999: 6–37)[11] (remember Chapter 4's mention of U.S. trade "decomposing the productive

[11] Mann, discussing whether the U.S. merchandise trade deficit is sustainable, argues that the United States can compensate for the deficit by expanding services exports. She points out that the United States has a comparative advantage in services and financial assets and should be assertive in urging the liberalization of business, finance, professional, insurance, electronic, and other services.

process into separable functions . . . allocated around the world"). As a result, during WTO/GATT's Uruguay (1986–94) and Doha (2002–) Rounds of negotiation under the **General Agreements on Trade in Services (GATS)**, the United States took leadership in efforts to liberalize trade among services.

Trade in services amounts to 25 percent ($1.2 trillion) of 1999 total world trade, which represented growth faster than trade in goods. Moreover, the World Bank estimates that liberalization of services could provide as much as $6 trillion in additional income in the developing world by 2015, four times the gains that would come from liberalization of trade in goods (World Bank 2002a:69–94). Yet negotiators made little progress in opening markets to management consulting, legal, accounting, engineering, advertising, insurance, financial, health, educational, transport, trade, and tourism services, and software. Many LDCs fear the dismantling of public services, even though WTO members have the right to determine which activities to open to foreign providers, including coverage and content, and what regulations to enact to protect the public interest. LDCs opposed liberalizing services not only because of the opposition of strong vested interests but because of the fear of losses from technological learning gains. Still, sometimes joint ventures and contracts with foreign consultants can provide an impetus for development of LDC services. However, for expansion in the trade in services to reach its potential, countries need clarity, and predictability in entry and exit, adopting systems that facilitate visas for up to one year for foreigners performing important services within the country (World Bank 2004f:144–145).

Despite the United States' recent surpluses in services, the increased trade in services may eventually benefit LDCs such as China, India, and the Philippines even more. These countries have a comparative advantage in inexpensive skilled labor services (see Chapters 1 and 2 on India's costs of labor services relative to those in the United States). With rapidly falling prices for international telephone calls, faxes, and e-mails, U.S. multinational companies and federal and state government agencies are increasingly outsourcing (contracting to a foreign company or unit) or offshoring (running directly) skilled services, such as "research and development, prepar[ing] tax returns, evaluat[ing] health insurance claims, transcrib[ing] doctors' medical notes, analyz[ing] financial data, [asking payment for] overdue bills, read[ing] CAT scans [computed axial tomography or X-ray imaging for medicine], creat[ing] presentations for Manhattan investment banks and much more" (Waldman 2003). English speakers abroad, in India, Ghana, or other LDCs, staff many telephone service desk jobs such as customer service help, technical support, and routine calls to clients or service recipients for U.S. companies or units. India, for example, with more than two million college graduates annually, has a large pool of educated English speakers available for no more than one-tenth of U.S. salaries. If telecommunications costs are negligible, trainers merely need to teach foreign English speakers to be empathetic, acquire minimal information about the United States, and (most important) speak with U.S. accents (ibid., 2003; Zachary 2003) to undercut services costs of U.S. college graduates.

The Mankiw Debate

Economists know Harvard's Gregory Mankiw, who became chair of the U.S. Council of Economic Advisors (CEA) in 2003, as the coauthor of the augmented neoclassical growth model (Chapter 5) and author of principles' and intermediate macroeconomics' textbooks. As CEA chair, he wrote, with his colleagues in the 2004 *Economic Report of the President:*

> One facet of increased services trade is the increased use of offshore outsourcing in which a company relocates labor-intensive service industry functions to another country.... Whereas imported goods might arrive by ship, outsourced services are often delivered using telephone lines of the Internet. The basic economic forces behind the transactions are the same, however. When a good or service is produced more cheaply abroad, it makes more sense to import it than to provide it domestically. (U.S. CEA 2004:229)

Among economists, this is not controversial, an application of the theory of comparative advantage. And indeed, as the quotes from Catherine Mann state, this type of specialization increases employment and economic growth. However, with election issues in which Democratic Party challengers focused on job insecurity and inadequacy of health care insurance, a comment by President George W. Bush's CEA chair supporting outsourcing overseas immediately sparked a public debate. At about the same time, Democratic presidential candidate Senator John Kerry was blasting chief executives of U.S. companies that outsourced computer and managerial jobs to India as "Benedict Arnold CEOs," an allusion to an army officer Americans regarded as a traitor during the Revolutionary War of 1776 against Britain.

Most politicians of the two major parties, Democratic and Republican, were united in condemning Mankiw's statement. Professor Mankiw was compelled to apologize for leaving "the wrong impression that I praised the loss of U.S. jobs." In the end, the debate became one between most prominent U.S. economists who supported Mankiw versus most politicians, including the president who distanced himself from the statement in his economic report. But like most such matters during an election cycle, the controversy blew over in a few days.

Intellectual Property Rights

The United States, as the world's leader in patents, trademarks, and copyrights, forms of **intellectual property rights (IPR)**, has been vulnerable to losses of economic returns from unprotected rights and piracy. Thus, during WTO's negotiations, the United States also has taken leadership to establish international rules to enforce protection of intellectual property rights enforcement worldwide.

WTO provides 10 to 20 years of protection of patents, trademarks, copyrights, biotechnological products, and other innovative products. The agreement guarantees creators of intellectual products and creative works a limited exclusive economic right. These provisions will increase LDC costs of royalty payments to foreigners, payments for products manufactured under license or imported, and enforcement

and administrative costs. Arun Ghosh (1993b:1696–1697), an Indian economist, complains that although Americans are urged to substitute generic for brand-name drugs, third world countries will need to increase their payments for product patents for life-saving drugs. LDCs may, however, gain from DCs' greater incentives to invest in LDCs and license patented inventions to their entrepreneurs. Yet, with restrictions on IPR, many economists think DCs will transfer less technology to LDCs after the WTO Uruguay and Doha Rounds than before (Ghosh 1993a:A-6; Rosenberg 1994:A-1, A-6; U.N. Conference on Trade and Development 1994:154).

Jagdish Bhagwati (2002b) is critical of the WTO agreement for the lengthy patent protection and for sanctions on countries deemed to use IPR without paying royalties. He blames the IPR provision on the "political muscle of pharmaceuticals companies," backed by the U.S. government, which threatened Super 301 or other penalties on LDCs that objected.

The WTO should concentrate on lowering trade barriers and tackling market access, Bhagwati continues, and not be involved in collecting royalties, under the guise of trade-related intellectual property (TRIPS). He believes that LDCs should be allowed to segment drugs' markets, selling lower-priced drugs to their own markets and other poor countries.

Foreign Exchange Rates

International trade requires one national currency to be exchanged for another. An Indian firm, for example, uses local currency, rupees, to buy the dollars needed to purchase a magnetic sensor from a U.S. company.

PRESENT EXCHANGE-RATE SYSTEM

The rules for today's international monetary system tolerate several ways of determining the exchange rate. The world's present managed floating exchange-rate system (mentioned in Chapter 16) is a hybrid of six exchange-rate regimes: (1) the single floats of major international currencies, the U.S. dollar, Canadian dollar, British pound, Japanese yen, and the euro of the 12 E.U. members of the European Monetary System – Germany, France, Italy, Spain, Portugal, Greece, Austria, Finland, Ireland, and the Benelux countries; (2) the independent (for example, Australia, Russia, Indonesia, India, Pakistan, the Philippines, Congo–Kinshasa, and South Africa) or managed float (for example, Nigeria, Taiwan, Turkey, Venezuela, and South Korea) of minor currencies;[12] (3) the frequent adjustment (usually depreciation) of currencies according to an indicator (for example, Brazil, Chile, and Colombia); (4) pegging currencies to a major currency (China, Malaysia, Morocco, and Egypt), especially to a dominant trading partner (38 are pegged to the U.S. dollar, 14 to the euro, and 5 to other currencies); and (5) pegging currencies to a basket (composite) of currencies, most notably **special drawing rights (SDRs)**, bookkeeping entries in the accounts of member countries of the IMF used as an internationalized currency by central banks

[12] The crawling peg (Turkey in 1999) and crawling band (Venezuela in 1999) are included here.

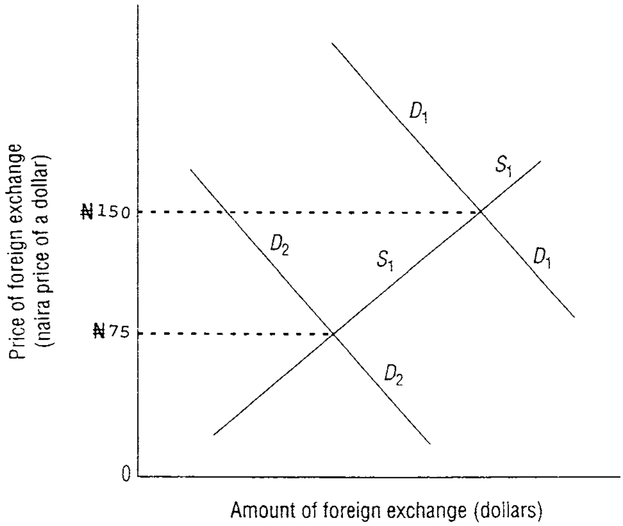


FIGURE 17-9. Determining the Price of Foreign Exchange under the Market and Exchange Controls. If allowed to float freely, the exchange rate will be ₦150 = \$1, at the intersection of D_1 and S_1. Controls on currency transactions by domestic citizens can repress demand to D_2, which intersects S_1 at a price of foreign exchange ₦75 = \$1. This rate, however, is likely to discourage exports and encourage attempts to obtain import licenses.

for official transactions (with the IMF and other central banks) (Fischer 2001:3–24; *IMF Surveys*). An extreme case of the hard peg, (4), the currency board, established by Argentina in 1991 after the hyperinflation at the end of the 1980s, contributed to a severe economic depression in the early years of the 21st century.

Domestic Currency Overvaluation

The domestic currency (Nigerian naira) price of foreign (U.S. dollar) currency, for example, ₦150 = \$1, is the **price of foreign exchange.** In a free market, this exchange rate is determined by the intersection of D_1, the demand for foreign currency (depending on the demand for foreign goods, services, and capital), and S_1, the supply of foreign currency (depending on foreign demand for domestic goods, services, and capital). (See Figure 17-9.)

Nigeria's increased demand for U.S. computers or insurance, *or* a reduced U.S demand for Nigerian oil or cocoa, increases the foreign exchange rate, for example, from ₦150 = \$1 to ₦175 = \$1.

The Central Bank of Nigeria may keep down the price of foreign exchange by using **exchange controls** to limit its citizens' purchase of foreign currency for foreign equipment, materials, consumer goods, and travel. Assume that the market-clearing price of foreign exchange (with no exchange controls) is ₦150 = \$1, determined

by D_1 and S_1. To avert a balance of payments crisis and domestic currency devaluation, however, Nigeria may repress demand to D_2 through exchange controls and trade restrictions, so that the actual price of foreign exchange is ₦75 = \$1, at the intersection of D_2 and S_2.

Overvaluing the domestic currency relative to foreign currency, however, may discourage import substitution and exports. At the rate of ₦75 = \$1, the exporter selling cocoa for \$10 a kilogram earns only ₦750, rather than ₦1,500 at the market exchange rate. Additionally, the domestic steel firm imports a computer whose world price is \$1,000 at only ₦75,000 rather than ₦150,000.

Avoiding Bias against Exports

Most LDCs' prices of foreign exchange are lower than market rates (for example, ₦75 = \$1 is lower than ₦150 = \$1), meaning they are biased against exports. These submarket exchange rates mean that the price ratio of nontraded to traded goods increases, so that imports and competitors to exports are cheaper in domestic currency. Some notable exceptions to low exchange rates argue in favor of adjusting exchange rates so they do not discriminate against exports. The yen in rapidly growing, early modern (Meiji) Japan (1868–1912) chronically depreciated vis-à-vis the U.S. dollar, which meant that the real exchange rate (see below) remained virtually unchanged. Fortuitously for Japan, during most of this period, the yen's standard was silver, which declined relative to gold. Moreover, Japan's modest trade restrictions (which reduced the demand for dollars and by themselves overvalued the yen) were offset by export promotion schemes (which increased the demand for yen). Doubtlessly, these foreign exchange policies help explain why Japan's annual real average growth rates in exports during the Meiji period were at least twice those of either the United States or Britain. Additionally, studies on effective rates of protection and effective subsidies indicate that South Korea, virtually the most rapidly growing LDC after World War II, discriminated *in favor* of exports (Westphal and Kim 1977; Nam 1981:46–73; Fransman 1986:76–85; Nafziger 1986b:1–26; Nafziger 1995:129–152).

Domestic Currency Devaluation

The country with an overvalued currency could impose compensating duties and surcharges on imported inputs and capital instead of relying on exchange controls, licenses, or quotas that implicitly subsidize the successful applicant. But these duties and surcharges, tax incentives, subsidies, loans, and technical assistance may stimulate import replacements and exports less than an overvalued domestic currency inhibits these activities. Devaluing the domestic currency to its equilibrium rate in order to ration imports through the market, encourage import substitution, and promote exports may be preferable to inducements under an overvalued currency regime. Additionally, domestic currency depreciation would increase labor-intensive

production and employment (Chapter 9), improve investment choice (Chapter 11), and reduce structural inflation but probably reduce real wages (Chapter 15).

The Real Exchange Rate (RER)

We cannot calculate LDC currency depreciation or appreciation vis-à-vis the dollar over time by looking at changes in the nominal exchange rates. To illustrate, in 1968 (the base year), ₦1 = \$1.40, whereas the United States wholesale price index and Nigeria's consumer price index were both 100. By 1979, ₦1 = \$1.78 (a 27 percent increase for the naira compared to 1968), whereas the U.S. wholesale price index was 237.6 and Nigeria's was 498.0. The **real exchange rate** (the nominal exchange rate adjusted for relative inflation rates at home and abroad), calculated as

> dollar price of naira in base year X percentage change in dollar price of naira from base year to terminal year X (Nigerian consumer price index/U.S. wholesale price index)

was ₦1 = \$1.40 in 1968, and ₦1 = \$3.73 (1.40 × 1.27 × 2.10) in 1979, which was an increase of 2.66, meaning the value of the naira vis-à-vis the dollar more than doubled over the 11-year period. With further **real appreciation**, as Nigerian nonoil exports became less competitive and imports more competitive, Nigeria depreciated the naira in 1986 under World Bank adjustment to bring it closer to the 1969 real exchange rate. However, with rapid inflation in the late 1980s and early 1990s, the Abuja government stubbornly resisted the more rapid naira devaluation necessary to maintain a stable real exchange rate.

Although we would prefer RER as P_T (the domestic price index of tradables) over P_N (the domestic price index of nontradables), this is difficult to calculate in practice. Thus, the most readily available proxies are, as indicated earlier, the domestic country's CPI or consumer price index (instead of the price index of nontradables) and the United States' WPI or wholesale price index (instead of the price index of tradables).

What is the significance of the real exchange rate? The RER is a good proxy for a country's degree of competitiveness in international markets? An increase in the RER represents a real exchange appreciation or a rise in the domestic cost of producing tradable goods. A decline, by contrast, reflects a real exchange rate depreciation or an improvement in the country's international competitiveness (Domac and Shabsigh 1999:4).[13]

The link between RER and economic performance in Latin America, Asia, and Africa is strong. Figure 17-10 shows that the real exchange rate of the Egyptian pound relative to the U.S. dollar is highly correlated with Egypt's trade deficit (Alawin 2003). RER misalignment undermines external competitiveness (by overpricing exports) and allocation of resources (by distorting prices of domestic relative to international

[13] If the exchange rate was expressed in U.S. dollar terms, as \$1 = ₦0.71 (rather than ₦1 = \$1.40), a decrease in the United States' RER to \$1 = ₦0.28 (rather than ₦1 = \$3.73) reflects a real exchange depreciation for the United States or an improvement in its competitiveness relative to the Nigerian naira.

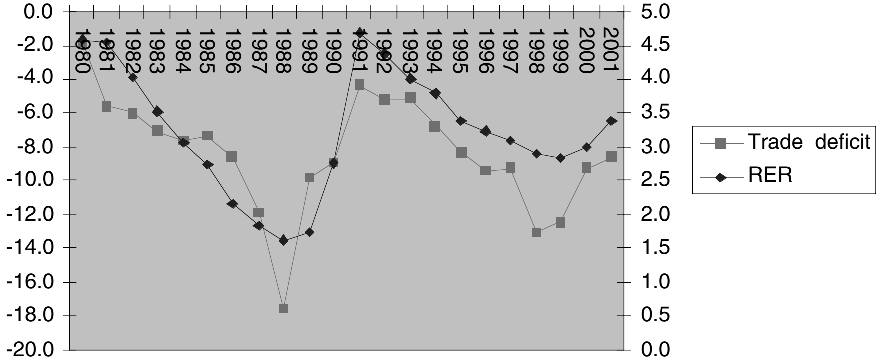


FIGURE 17-10. Egypt: Trade Deficit and Real Exchange Rate. *Source:* Alawin 2003:8.

prices), and adversely affects domestic financial markets (by increasing uncertainty and encouraging speculation against the domestic currency). In Africa, a RER misalignment stymied the development of agriculture and reduced the domestic food supply (Domac and Shabsigh 1999:3–5).

For greater precision, you calculate the real effective exchange rate by weighting the real exchange rate index of each trading partner by its importance in total trade. The weight of each country is determined by dividing the value of trade (imports plus exports) of that country with the home country by the total trade (imports plus exports) of the home country.

Dual Exchange Rates

Currency depreciation can have short-run costs, especially in an economy that adjusts slowly. Inflation and shortages may appear before consumers switch to replacements for foreign food and other consumer goods, before export and import substitution industries expand capacity to take advantage of more favorable prices, and before buyers of imported inputs and capital goods can shift to domestic suppliers. These transitional problems have led some economists to suggest a dual exchange rate, with the first a near market rate, used to reduce controls, spur exports and import substitutes, and increase efficiency; and the second, perhaps the old rate overvaluing domestic currency, set to dampen short-run inflationary pressures from price inelastic foreign goods like food, industrial inputs, and capital goods (or their domestic substitutes shifting to exports) or to maintain foreign exchange commitments for foreign corporations repatriating interest and dividends (Kaldor 1984:1093–1095). In 1983, in response to an overvalued cedi, Ghana instituted a dual exchange rate (with a surcharge on nonessential imports and a bonus to exporters), while also increasing farm producer prices, removing price distortions on oil and other goods, and reducing deficit financing. By 1984, inflation fell and growth accelerated. Despite protest from labor unions about its effect on the cost of goods previously consumed, Ghana widened the distance between the two exchange rates in 1985 and 1986. These measures improved the balance on goods and services in 1986 (Nafziger 1988a:153–154).

However, dual rates maintain some price distortions, postpone resource adjustments, and spur people to acquire foreign currency cheaply in one market and sell it expensively in the other.

Still, dual exchange rates can support the consumption of the state elite. In Angola, elites imported luxury cars at the official exchange rate (a cheap kwanza price of both the U.S. dollar and thus foreign-made automobiles), whereas food was imported using foreign currency at the more expensive parallel market rate (Agular 2003:132).

Exchange-Rate Adjustment and Other Prices

Let the student be warned: Market-clearing exchange rates may not provide enough signals for improving the efficiency of resources use if domestic prices of goods and services, wages, interest rates, and other prices are not flexible (Srinivasan 1987:427–443). The theory of the second best states that if economic policy cannot satisfy all the conditions necessary for maximizing welfare, then satisfying one or several conditions may not increase welfare (that is, may not lead to a second-best position). This theory indicates that liberalizing one price (for example, the exchange rate) while other prices are still repressed may be worse than having all prices distorted.

The Impossible Trinity: Exchange-Rate Stability, Free Capital Movement, and Monetary Autonomy

From 1979 to 1999, with the birth of the euro currency, the European Monetary System (EMS) aimed to maintain stable exchange rates, free capital mobility, and national control over monetary policy among members, labeled an **impossible trinity** by OECD economist Helmut Reisen (1993:21–23, supported by Higgins 1993:27–40). On the average of once per year, however, weak-currency countries could no longer maintain the tight coordination of their currencies with the German mark, contributing to a crisis in the foreign-exchange or capital markets. The French or Italian treasury then have confronted the prospect of capital controls, increased interest rates in the face of high unemployment, or devaluing the currency or widening currency spreads (as in mid-1993, when European finance ministers pretended that the increase from 2.5 percent to 15 percent in the range allowed around parity did not mean abandoning a fixed exchange-rate system).

Since 1999 for bank deposits and 2002 for notes and coins, 12 inner Western European members of the 25 (then 15) members of the European Union adopted a common currency, the **euro**. In 1992, the European Union adopted the stability and growth pact of the Treaty of Maastricht (Netherlands). This treaty set a deficit ceiling of 3 percent of GDP for each member, essential to maintain the credibility of the euro. Portugal was forced by members of the euro bloc to slash public spending in 2001, contributing to a deep recession in 2002–03. However, in 2003, the two most influential bloc members, Germany and France, were spared the severe fines and sanctions for running excessive budget deficits, signaling the eventual death of Maastricht (Economist 2003c:45). In mid-2005, European Central Bank Vice President

Lucas Papademost expressed concern about the macroeconomic underperformance of the 12 eurozone members (especially Italy) relative to non-euro OECD members. OECD economists Romain Duval and Jorgen Elmeskov attributed the relatively slow growth of eurozone countries relative to other DCs to the "absence of monetary policy autonomy" (Atkins and Jenkins 2005:1). For LDCs, with even less economic policy discretion than Germany, France, and Italy, the trinity is even less possible.

During the 1980s and early 1990s, countries such as Taiwan and Singapore, however, demonstrated their ability to maintain exchange-rate stability against the dollar or a basket of currencies (Reisen 1993:21–23). Most other emerging nations are too vulnerable to external price and demand shocks to maintain stability of their currencies vis-à-vis major DC currencies (Wessel 1995:A2). However, the other extreme, relinquishing control over financial policies, is just as bad. The francophone West African countries in the CFA (*communaute financiere africaine*) franc zone paid a heavy price in growth foregone by maintaining their currencies fixed at CFAF50 equal to one French franc from 1948 to 1994. During much of this period, the CFA countries lacked the autonomy to use monetary, fiscal, and exchange-rate policies to stimulate demand. By the mid-1980s, the United Nations (1994:47–50) contended that "after several years of unsuccessful adjustment, it became increasingly apparent that the center-piece of the franc zone – the fixed exchange rate against the French franc – was seriously impeding the adjustment effort." Since the mid-1980s, the CFA countries experienced real currency appreciation vis-à-vis DCs and neighboring countries and falling terms of trade, contributing to chronic current-account deficits. From 1960 to 1994, distorted exchange-rate prices contributed to the negative or negligent economic growth of Chad, Niger, Benin, Burkina Faso, Central African Republic, Mauritania, Ivory Coast, and Senegal.

And the currency crises discussed later indicate the futility of fixed exchange rates for LDCs.

Currency Crises

Chapter 14 discussed LDC financial market weaknesses and Chapter 16 financial crises. Many a financial crisis results from a currency crisis, often from exchange-rate rigidity that, over time, contributes to an overvalued domestic currency that reduces the country's competitiveness internationally, leading to a chronic current-account deficit.

Manuel Montes and Vladamir Popov (1999:1–19) differentiate between Russia's 1998 currency crisis, resulting from an overvalued rouble, and the 1997 Asian crisis, which was from excessive private-sector borrowing abroad rather than currency overvaluation. Excessive borrowing contributed to a loss of confidence by lenders in borrowers' ability to service debt. However, in East Asia, except for South Korea, one component of the crisis was that the domestic currency had been set at a constant nominal exchange rate, leading to real currency appreciation and high current-account deficits. Before their financial crises, Asia, Russia, Mexico (crisis in 1994), and Argentina (2001–03 crisis) had overvalued currencies.

The Russian rouble (Ru) changed from Ru0.67 = \$1 (1990), to Ru5 = \$1 (1995–1996), to Ru6 = \$1 (1997–1998) (all mid-year). Efforts in the early 1990s by the Central Bank of Russia, supported by the IMF, to defend a currency peg and "maintain a scandalously high domestic interest rate," (Montes and Popov 1999:52) amid a 325,000-fold inflation, 1990–95 (Table 19-2), inevitably led to export stagnation and rising imports. The resulting chronic international deficit and massive capital outflows forced devaluation in August 1998. With debt restructuring and a continuing rouble fall to rates in excess of Ru200,000 = \$1 in 1999–2000, Russia's exchange rate no longer hampered exports, thus helping restore its external balance.

As indicated in Chapter 14, Argentina experienced four-digit inflation rates two years in the late 1980s. In response, Argentina established a currency board in 1991, requiring the central bank to back its monetary base by 100-percent foreign exchange (or in an emergency, 20 percent of assets could be in dollar-denominated government debt). The currency board guaranteed full, unlimited convertibility of the Argentine peso into U.S. dollars.[14] Since the central bank (*Banco Central de la República Argentina*) held no domestic assets, it could not run out of foreign-exchange reserves during a speculative attack (Mussa 2002:20).

Argentina needed an exchange-rate peg for a few years in the early 1990s to serve as an anchor to prevent cost–push inflation. Indeed, the stable peso helped generate a "miracle" of inflation deceleration from 1989 to 1995 (Chapter 14). However, a currency board is too rigid, lacking flexibility when inevitably, as in the early to mid-1990s, an increasingly overvalued peso made Argentine exports uncompetitive, contributing to chronic international payments deficits through the 1990s and 2000–03. A floating or crawling peso with a speed limit, on the heels of a short period of a pegged currency would have helped restore Argentina's exports and trade balance, and provided more options for macroeconomic expansion to prevent the 1998 to 2002 depression and 2001–03 default to the IMF and other creditors (Moffett 1994:A10).

Joseph Stiglitz (2002a), although admitting Argentina's mistakes, faults the IMF for its insistence on Argentine economic austerity and the United States for its lack of trade credits. "The IMF," according to Stiglitz (2002b:27) "seems to confuse means with ends. . . . A country like Argentina can get an 'A' grade, even if it has double-digit unemployment for years, so long as its budget seems in balance and its inflation seems in control!" For Stiglitz (2002a), if the United States had provided trade credits to Argentina, as U.S. importers did to Mexico in 1995, or as Japan's Finance Minister Kiichi Miyazawa did for East Asian LDCs during their crisis, Argentina's depression and debt crisis would have been less serious (Stiglitz 2002a).

[14] Argentina considered moving toward **dollarization**, but never did (Mussa 2002:22). A currency board differs from dollarization, in which foreign currency is used as the dominant (Russia in the early 1990s) or exclusive (Panama, Ecuador, and El Salvador) legal tender (Schuler 2004).

The adoption of the U.S. dollar by El Salvador on January 1, 2001, limited its ability to escape the stagnation that began in the mid-1990s. El Salvador's chronically high production costs limited its export competitiveness. However, dollarization prevented El Salvador from increasing its export competitiveness by matching neighboring countries' devaluation (Silver and Authers 2004:2).

Managed Floating Plus

Stanley Fischer (2001b:1), as IMF First Deputy Managing Director, in a distinguished lecture to the American Economic Association, contended that during the 1990s and early years of the 21st century

> many countries . . . changed their exchange rate regimes, moving from crisis-prone soft pegs to hard pegs or floating regimes. This trend is likely to continue, particularly among emerging market countries.

For Fischer (2001a:1), "soft" pegs referred to anything other than the bipolar or two-corner solutions, which are hard pegs (currency boards and dollarization) and managed or independent floats, on the other. For countries open to international capital flow, Fischer (2001b:4) contends, "the excluded arrangements are fixed, adjustable peg, and narrow band exchange rate systems." His view that soft pegs are unsustainable is based on an IMF survey of de facto emerging markets' exchange rates, although it is likely that soft pegs include countries attempting one of the corner solutions but failing, thus biasing the sample. Moreover, IMF and U.S. Treasury pressure may have been a factor moving LDCs away from intermediate (soft peg) exchange-rate regimes (Fischer 2001b:4).

The Argentine crisis later in 2001 contradicted Fischer's view that very hard pegs are sustainable for countries open to international capital flows. The only corner solution left is managed or independent floating.

The Institute for International Economics' economist Morris Goldstein (2002:1, 43–44) argues for "managed floating plus." A managed float indicates no publicly announced exchange rate target and a determination of exchange rates mainly by the market. However, monetary authorities would intervene into the exchange market to "smooth" excessive short-run fluctuations or to maintain market liquidity. The float not only allows the exchange rate to serve as a market gauge for assessing policies (Tavlas 2003:1215–1246) and a shock absorber to "accommodate better external shocks" (Edwards 2004:63), but also permits more freedom to pursue domestic macroeconomic objectives of growth and full employment (see Chapter 19 on internal and external balance).

"Plus" stands for inflation targeting and measures to reduce currency mismatching. This regime combines the best of the float, monetary independence and resilience to large external shocks, but also provides a nominal anchor to prevent cumulative currency depreciation and inflation and limits exchange-rate movement to address LDCs' "fear of floating" (Fischer 2002b:7–8). Allowing exchange rates to move enough to remind private market participants, such as DC portfolio investors, of currency risk, should reduce the onrush of capital inflows that often gives rise to large reversals of panic-induced capital outflows (Goldstein 2002:viii).

Inflation targeting means a public announcement of a numerical target (or sequence). The government provides the central bank with enough independence to set monetary policy to achieve the targeted rate. Central bankers are also subject to transparency and accountability, so that they inform the public of the reasons

for monetary policy and the extent to which they have obtained their objectives (Goldstein 2002:44).

Goldstein (2002:44) defines a **currency mismatch** as a situation in which the currency denomination of a country's (or sector's) assets differs from that of its liabilities such that its net worth is sensitive to changes in the exchange rate." Local currency depreciation would impose large losses on banks and their customers. The monetary authorities can discourage mismatches by allowing exchange rates to move enough to remind market players of risk, publishing data on mismatches, limiting banks' net open positions in foreign currency through regulations, developing deeper capital markets that enable better hedging, prohibiting government borrowing in foreign currency, or making foreign currency obligations incurred by domestic residents unenforceable in domestic courts" (ibid., pp. 44–45).

Chile and Israel have used inflation targeting with success. Chile took nine years from the inception of inflation targeting in 1990 to stabilize, whereas Israel stabilized in six years after targeting began in 1991 (Goldstein 2002:62). Indeed, Frederic Mishkin and Klaus Schmidt-Hebbel (2001:33) indicate that despite unresolved issues, over the previous 10 years, "inflation targeting has been quite successful in controlling inflation and improving the performance of the economy."

Still, as the reviewer Tavlas (2003) indicates, Goldstein does not regard managed floating plus as a Holy Grail. Much depends on government credibility. No exchange rate regime can eradicate failed efforts at stabilization. However, managed floating, together with inflation targeting and avoiding currency mismatching, has as much potential as any exchange rate regime to help LDCs disinflate with a minimal sacrifice of growth and employment.

Regional Integration

In 2001 only 25 percent of LDCs' total exports of $658 billion went to other LDCs (World Bank 2003h:314–318). To some economists, this indicates the substantial output gain potential from greater *intra*-LDC trade (and factor movements). Many LDC leaders, frustrated by DC protectionism, a lack of internal economies of scale, and declining terms of trade for primary products, have advocated **economic integration**, a grouping of nations that reduces or abolishes barriers to trade and resource movements among member countries. Integration ranges along a continuum from its loosest form, a preferential trade arrangement, to a free trade area, a customs union, a common market, an economic union, and to the most advanced integration, a complete economic and monetary union.

A **preferential trade arrangement**, illustrated by the Preferential Trade Area for Eastern and Southern African States (PTA), launched in 1982, provides lower tariff and other trade barriers among member countries than between members and nonmembers; in 1995 PTA was transformed into the Common Market for Eastern and Southern African States (COMESA), which despite the name became a customs union in 2000. The South Asian Association for Regional Cooperation Preferential

Trading Arrangement (SAPTA), which includes India, Pakistan, Bangladesh, and Sri Lanka, was established in 1995.

A **free trade area (FTA)**, such as the North American Free Trade Agreement (NAFTA) signed in 1993 among the United States, Mexico, and Canada, removes trade barriers among members, but each country retains its own barriers against nonmembers. NAFTA provides for free trade of goods and most services (phased in by 2009) and free capital movement in most sectors, but not free labor migration. Because external tariffs vary, FTAs need **rules of origin**, for example, to ensure that a majority of the value-added originates in member countries. In NAFTA, these rules prevent Asian and European companies from establishing assembly operations in Mexico as a back door to U.S. and Canadian markets (Morici 2004). In 1991, NAFTA negotiators overruled the U.S. challenge to a 50-percent domestic content of Canada's export of Honda automobiles.

Visionaries had hoped that a U.S. bilateral free trade agreement with Chile, signed in 2003, would be the first step toward an eventual Free Trade Area of the Americas, that is the Western Hemisphere; in 2004, progress toward this goal was uncertain, although, as indicated later, not necessarily a loss. Another example is AFTA (the FTA of ASEAN, the Association of Southeast Asian Nations, ECOWAS (Economic Community of West African States), and SADC (Southern African Development Community, established in 1992 as a successor to the Southern African Coordination Conference (SADCC), founded in 1980 by nine antiapartheid independent states.

A **customs union** is exemplified by the European Community (EC), 1957 to 1970. In addition, the Mercado Comun del Sur (Mercosur) customs union, signed in 1991 by Brazil, Uruguay, Argentina, and Paraguay, provides for progressive tariff reduction (with a number of exceptions) and free movement of people. Other customs unions include the Andean Pact (Bolivia, Colombia, Ecuador, Peru, and Venezuela), and (despite its name) the Central American Common Market (CACM), which go beyond the free trade area to retain common trade barriers against the rest of the world.

A **common market** moves a step beyond a customs union by allowing free labor and capital movement among member states. An **economic union**, not yet achieved by the European Union despite its name, goes further by unifying members' monetary and fiscal policies. The success of the United States, whose 1789 constitution made 13 states a **complete economic and monetary union**, and that of the EU have partly served as a spur to increased economic integration by LDCs (Asante 1986:24–28; Salvatore 1995:299–328; Schiff and Winters 2003:26–29).

The African Economic Community (AEC), in operation since 1991, seeks to create an African Common Market (ACM) in six stages, using the nine existing regional trade organizations as building blocs. The contributors to Daniel Bach's *Regionalisation in Africa* (1999) indicate that, except for what was the franc (now pegged to the euro) zone, African regional trade organizations (including the ACM) exist only on paper. Borders are generally not costly impediments to the movements of goods and resources, however, even in failed states, as there is a large volume of unrecorded trade, including drugs and mineral smuggling.

Many LDC attempts at economic integration have not succeeded. Sometimes less advanced nations have been discontented that the most advanced members of the union receive (or are thought to receive) the lion's share of the benefits. East African Cooperation (EAC), an example of this discontent, broke up in 1977 and was revived in 1996; the overwhelming amount of new industrial investment went to the relatively developed center, Nairobi, and other cities in Kenya. Working out agreements to compensate members with the smallest shares of gains, or to assign some industries to each member country, is difficult. Moreover, the market size of many unions, such as the EAC and CACM, is too small to attract industries that require substantial internal economies of scale. A related dilemma is an externally oriented transport system that lacks adequate intraregional transportation facilities (Kreinin 1987:394–396). Furthermore, although theory indicates the union gains most from specialization reallocation from less efficient producers exiting the industry and shifting their resources to activities with a greater comparative advantage, most LDCs perceive this "creative destruction" as harmful. LDCs made only modest gains in South–South integration and trade in the last half of the 20th century. However, because of the increasing importance of the South in global income trade, we can expect increasing efforts at integration of the developing world.

We turn now to a consideration of LDCs involved in efforts at regional economic integration with DCs beyond efforts by the European Union with ACP countries. All 15 E.U. members before 2004 plus Slovenia (ahead of Greece and Portugal in the inside cover table) were high-income countries. The remaining former communist countries – Poland, Czech Republic, Hungary, Slovakia, Estonia, Latvia, and Lithuania – in addition to Malta and Cyprus, are middle-income countries. The major economic advantages to the 10 acceding countries are the continuing structural reforms of their economies, specialization and scale economies from integration into the world's largest market (455 million in 2004), free movement of labor after 2011, and attracting capital flows because of lower labor and other input costs.

The gist of this chapter is to support an open, multilateral global free trade system to maximize growth and efficiency in resource allocation. Are preferential trade pacts building or stumbling blocs for an open multilateral system?

GATT (now WTO) allows regional trade organizations (RTOs) that remove barriers among members (in no more than 10 years after the formation of an RTO) and do not raise trade barriers against nonmembers. RTOs can reduce total world welfare by **trade diversion** from a member country displacing imports from a lowest-cost third country. NAFTA diverts some U.S. sourcing from lower-cost Korea, Taiwan, and Asian and Caribbean countries to Mexico. However, regional economic groups are also responsible for some **trade creation**, in which a beneficiary country's firms displace inefficient domestic producers in a member country. For example, under NAFTA, the United States increased U.S. beef, pork, and poultry exports to Mexico, whereas Mexico increased exports of electronic products and ladies' dresses to the United States.

But some economists are convinced that RTOs reduce world welfare. Grossman and Helpman (1994) argue that political pressures to form RTOs are greater when

members' firms gain more from trade diversion than they lose from trade creation, a situation most likely to reduce world welfare. Jeffrey Frankel (1997) is uncertain whether NAFTA's effect on world welfare has been positive.

In general, do regional trade organizations, organized according to geographically contingent regions, contribute to freer multilateral trade? Jeffrey Frankel's (1997) answer is: It depends. RTOs are more likely to spur net trade creation when the number of RTOs in the world is low (for example, two or three RTOs approach the ideal of worldwide free trade),[15] transport costs between world regions are high, transport costs within the RTO are low, the preference for RTO goods is low, the asymmetries (RTO size in gross product and number of member nations) in blocs are low, and the elasticity of substitution between domestic and foreign goods (percentage increase in quantity demanded/percentage reduction in price as a result of the shift from the domestic to the foreign source) is high, a number that depends on the level of protection.

Many economists think that the formation of a Free Trade Area of the Americas would be harmful, not so much because of net trade diversion but because of the United States' likely process of expanding NAFTA to FTAA. Gary Clyde Hufbauer and Jeffrey Schott (1994:176–183) oppose the United States, the dominant country in the Western Hemisphere, negotiating the expansion of NAFTA country by country. These bilateral negotiations would divide prospective FTAA countries, and would spawn disparate rules that would create enormous confusion in the global trading system. Not the least of this confusion would be the movement of capital and labor back and forth as NAFTA (or its successor) and other regional groups continually change the composition of their membership.

In the early years of the 21st century, the United States signed bilateral trade agreements with Jordan, Morocco, Singapore, and Chile, to add to its agreement with Israel in 1985. In addition, the United States has bilateral arrangements, limited to certain products, with several other countries. Bhagwati and Panagariya (2003) assert that "Thanks to the myopic and self-serving policies of the [United States], bilateral free trade agreements are damaging the global trading system, . . . [a] tactic [that] is weakening the power of poor countries in multilateral trade negotiations." With the United States and other Western Hemisphere countries pursuing a web (Bhagwati says "blight") of bilateral (not shown here) and multilateral agreements, the trading system, with its rules of origins and tariffs, resembles a "spaghetti bowl" (Bhagwati 2002a:A10) (see Figure 17-11).

The Euro and U.S. Dollar as LDC Reserve Currencies

The 10 acceding E.U. members lack the banking and macroeconomic institutions of the other members. Thus, economists do not expect the euro, the common currency for 12 E.U. members, to be the major currency in the 10 acceding E.U. members

[15] Frankel's caveat (1997:168) is that the limit, when each country is its own bloc, is preferable to a medium number of blocs. Determining the optimal number of blocs, however, depends on tariff rates.

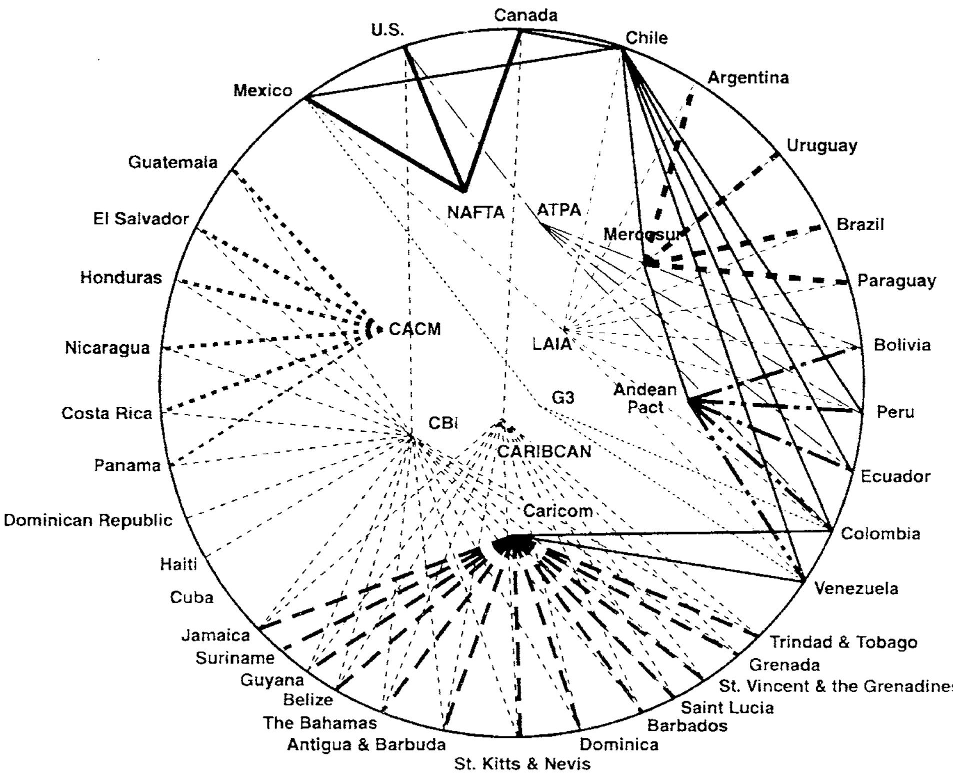


FIGURE 17-11. Western Hemisphere Trade Agreements (c. 2000). *Source:* Frankel 1997:10.

until several years after 2005. But the 10 may benefit from reduced exchange rate risk when making transactions with the rest of the European Union, their major trading partners.

What role will LDCs have in determining the relative importance of the dollar and euro as a reserve currency? In addition, what effect will shifts from the dollar to the euro have on the massive capital flows to the United States, used to finance its chronic balance of payments deficit? Already, Jacques Polack (1998:60) states, the dollar-dominated world monetary system was replaced by a two and one-half polar system – the dollar, euro, and yen. Moreover, all Organization of Petroleum Exporting Countries (OPEC) states, except Nigeria and Venezuela, export more oil to the European Union than the United States. In 2003, OPEC holding funds in U.S. dollars subjected members to currency loss (Samii, Rajamanickam, and Thirunavukkarasu 2004). Only the United States' more highly developed capital market slowed the switch away from the dollar.

Polack (1998:60) thinks that, by 2010, euro reserves will be as much as one-half dollar reserves. Moreover, as eurozone capital markets develop, Europeans will loan more to LDCs. Surely all of these changes would also reshape global specialization and trade patterns as well (Cohen 2001:294–314).

Promotion and Protection of Infant Entrepreneurship

The dynamic gains from learning management and technology by doing, for countries such as Malaysia, Thailand, India, and Latin American countries, are likely to be substantial, although they may be difficult to measure. Much of this dynamic learning can come from being open to international trade.

Importing from technologically advanced economies improves an LDC's industrial efficiency. Moreover, LDC engineers and technicians may import a foreign machine, tear it apart, learn how it was put together, and modify it to fit local circumstances. The product-cycle model, discussed above, suggests that technological borrowing can proceed from imported product to a copy, usually inferior in quality, to slow improvement, with finer grades and specialties, which come with experience, improved endowment of human and physical capital, and a shift in comparative advantage. Examples of LDCs following this sequence include Japan in the 1880s and 1890s and the early decades of the 20th century, and the Asian Tigers after 1970.

An LDC can respond to the exacting demand of foreign consumers, as Japan's textile industry did in the 1920s and 1930s, reorienting itself from silk to cotton and rayon goods demanded by American women. Or third world labor learns to produce inputs and parts to precise specifications. In the late 19th century, the Japanese improved their technology by working with Western firms (Lockwood 1954:331–32; Economist 1995c:78; Nafziger 1995:38–39, 43, 47, 137). Later, in the 1980s and 1990s, as mentioned earlier, ASEAN labor learned to meet the specifications of advanced Japanese industry.

One alternative to protecting infant industry from foreign competition through tariffs is protecting **infant entrepreneurship** through restrictions on foreign investment. To be sure, limiting foreign capital by requiring majority local ownership in certain sectors, reserving other sectors entirely for local enterprise, and limiting repatriation of the profits of foreign capital and the earnings of foreign personnel (see Chapter 14) may discourage overseas investment and enterprise.

Still, as the *Wall Street Journal* indicated in mid-1994, "the foreign-investment blitz has been a mixed blessing for Mexico and Argentina, which have seen their currencies appreciate greatly against the dollar. The overvalued currencies make exports from Mexico and Argentina more expensive and imports cheaper." As a result, both countries ran huge deficits in their international goods, services, and income accounts in the early 1990s.

In contrast to Mexico and Argentina, Chile favored local entrepreneurs and capitalists without drastic restrictions on foreign capital. Although economic liberalization in Chile in the early 1990s surpassed that of virtually all other Latin American countries, Chile had the most stringent controls among Latin countries on incoming capital, protecting local enterprise without distorting the foreign-exchange rate substantially. In 1994, the Chilean government required foreign companies (or Chilean companies with foreign collaborators) to offer a minimum issue of $25 million on the Chilean stock exchange and have approval from two foreign credit-rating agencies.

Additionally, the foreign company had to pay a hefty capital-gains tax and wait one year to repatriate their funds abroad. Foreign investment was $21 billion in Mexico, $15 billion in Brazil, $11 billion in Argentina, and $4 billion in Venezuela, while only $1 billion in Chile in 1993. At the same time, however, Chilean entrepreneurs and savers responded with high levels of domestic capital formation and new ventures, and moderated the boom-and-bust and balance-of-payment cycles associated with foreign investment in the 1980s (ibid.). UNCTAD (1994a:136) thinks that the GATT's Uruguay Round was unclear about how much LDC protection of domestic entrepreneurship and regulation of trade-related foreign investment were allowed.

Black Markets and Illegal Transactions

Black markets for foreign exchange form in response to restrictions on trade (tariffs, quotas, and administrative controls) and controls on currency transactions (as in Figure 17-9). In mid-1983, the premium for the black market relative to the official market for foreign exchange was 310 percent in Nigeria (that is, the black-market rate, ₦2.95 = $1 was 410 percent of the official rate, ₦0.72 = $1), 72 percent in Ecuador, 27 percent in Pakistan, 26 percent in Mexico, 6 percent in Morocco, and 3 percent in Malaysia. The imposition of exchange and trade restrictions creates incentives to overinvoice imported goods (depositing excess foreign-currency proceeds in foreign bank accounts) and smuggle. Illegal trade creates a demand for illegal currency, which stimulates its supply, leading to the establishment of a black market if the central bank is unable or unwilling to meet all the demand at the official price of foreign exchange. The major sources for the supply of illegal foreign currency comprise export smuggling, underinvoicing exports, overinvoicing imports, exchanges by foreign tourists or diversion of remittances through unofficial channels, and diversion by government officials in exchange for bribes or favors. Black markets for foreign exchange have several adverse effects on government authorities: the cost of enforcement, the loss of tariffs revenue, the encouragement of government corruption and rent seeking, and the loss of income to government on foreign currency transactions. Liberalizing the official market for foreign exchange, an action that usually depreciates the domestic currency, will usually reduce the black-market premium for foreign exchange.[16]

Although estimates are imprecise, illegal and black-market transactions are important components of international trade. The Overseas Development Council (ODC) estimates 1990 illegal narcotics (coca, cocaine, marijuana, and heroin) exports as 186 percent of legal export earnings in Columbia, 184 percent in Bolivia, 136 percent in Jamaica, 121 percent in Mexico, 90 percent in Peru, and 39 percent in Pakistan. The opium and heroin export percentage in Afghanistan and the Golden Triangle (Burma, Thailand, and Laos) and illegal export percentages in some other LDCs are also substantial (Economist, October 8, 1988, p. 22; Overseas Development Council

[16] Agenor (1992:5–25). In Colombia, however, the black market has consistently paid a premium for the domestic currency, the peso.

1991:30). For many LDCs, official measures of balance-of-payments components must be suspect.

Nafziger (2006b) discusses "A New International Economic Order: The UN General Assembly versus the New Liberalism."

Conclusion

1. The LDCs generally gain from a free trade policy wherein they produce goods in which they have a comparative advantage. Factor endowment and technology help determine a country's comparative advantage.
2. Exceptions to the free trade argument include increasing returns to scale, external economies, potential technological borrowing, changes in factor endowment, a revenue tariff, increased employment, improved balanced of trade, greater domestic stability, national defense, antidumping, and reduced luxury consumption. Yet most of these tariff arguments are weaker than many LDC economic policymakers think.
3. In the more than 100 years since the last quarter of the 19th century, the commodity terms of trade (price index of exports/price index of imports) of primary product exporters have probably fallen.
4. Export promotion is generally more effective than import substitution in expanding output and employment.
5. Rapid growth in LDC manufactured exports in the last few decades was primarily concentrated in middle-income countries, such as Taiwan, South Korea, Hong Kong, Singapore, Spain, Brazil, Thailand, Indonesia, and Malaysia.
6. Although the generalized system of tariff preferences and the 1970s' Tokyo Round negotiations reduced DC tariffs on selected LDC imports, these gains may have been outweighed by losses from protectionist policies set up during the 1980s. Additionally, DCs increased nontariff trade barriers against LDC imports, especially labor-intensive goods, in the late 1970s, 1980s, and 1990s.
7. For DCs with no tariff on LDC primary products but a substantial tariff on manufacturing and processing that uses primary goods as inputs, the nominal rate of protection is less than the effective rate of protection.
8. Expanding primary exports stimulated rapid economic growth in a number of Western countries in the 19th century, but this approach has had a more limited impact on growth in today's LDCs.
9. Although the IMF's and European Union's compensatory financing schemes have helped stabilize LDC export earnings, a common fund has not been established, and buffer stock agreements have been of limited value.
10. Agricultural subsidies in the United States, European Union, and Japan are major barriers against LDC farm exports.
11. The LDCs with a foreign exchange price below the market-clearing price can improve import rationing, encourage import substitution, and promote exports by depreciating their currencies. Yet, the gains may be limited if domestic prices are still repressed.

12. Regional economic integration among LDCs or of LDCs with DCs has the potential for limited gains in LDC economic growth. However, regional free trade, although superior to bilateral trade agreements, is inferior to worldwide free trade in global efficiency.
13. Developing countries gain from integration within the Asian and North American borderless economies. However, members of these economies need to ensure that they do not sacrifice their economic autonomy and gains from learning to integration as a peripheral economy within a Japanese- or U.S.-organized borderless economy.

TERMS TO REVIEW

- Asian borderless economy
- boomerang effect
- buffer stocks
- cartel
- commodity terms of trade
- common market
- comparative advantage
- complete economic and monetary union
- currency mismatch
- customs union
- Doha Development Round
- dumping
- economic integration
- economic union
- effective rate of protection
- Engel's law
- euro
- exchange controls
- export purchasing power
- factor proportions theory
- free trade area
- General Agreements on Trade in Services (GATS)
- generalized system of tariff preferences (GSP)
- global production sharing
- Group of 77
- Heckscher–Ohlin theorem
- import substitution
- impossible trinity
- income elasticity of demand
- income terms of trade
- infant entrepreneurship
- infant industry arguments
- inflation targeting
- integrated program for commodities
- intellectual property rights
- intraindustry trade
- laissez-faire
- liberalism
- managed floating plus
- monopolistically competitive
- Multifiber Arrangement (MFA)
- price of foreign exchange (exchange rate)
- Prebisch–Singer thesis
- preferential trade arrangements
- product cycle model
- product differentiation
- real appreciation
- real exchange rate
- rules of origin
- single factoral terms of trade
- special drawing rights (SDRs)
- staple theory of growth
- technological advantage
- trade creation
- trade diversion
- Uruguary Round
- World Trade Organization

QUESTIONS TO DISCUSS

1. What are the major arguments for and against tariffs in LDCs? in DCs?
2. Present the four arguments for tariffs you consider strongest and then indicate their weaknesses.
3. Discuss the adequacy of using a model with three factors – land, labor, and capital – in determining comparative advantage. How would we extend the Heckscher–Ohlin model to explain LDC comparative advantage more realistically?
4. Discuss whether a capital-poor LDC would better import capital-intensive goods from abroad, attract capital from abroad, subsidize and spur production shifting comparative advantage to these goods, or use liberalized policies for capital and other factor markets.
5. Do LDCs face historically deteriorating terms of trade?
6. What are the major arguments for DC protection against LDCs? How valid are these arguments?
7. Which is more effective in expanding LDC output and employment: export expansion or import substitution? What policies avoid biases against exports?
8. Name and then characterize those LDCs that were most successful in expanding exports in the last quarter of a century or so.
9. Why is the nominal rate of tariff protection a poor gauge of the effective rate of protection for processed and manufactured goods?
10. Why are nominal exchange-rate changes inadequate when calculating currency depreciation or appreciation? Indicate how to calculate the real exchange rate.
11. Which LDCs have gained the most from participation in global production networks (GPNs)? What are the reasons for their gains? What strategies can non-GPN LDCs use to become a part of a global production network?
12. What DC changes in tariff policies would aid LDC development?
13. What changes should LDCs make in trade policy to increase their gains from globalization?
14. How much progress has the WTO/GATT system made in facilitating the trade expansion of LDCs since 1960? What changes would you recommend to the WTO/GATT system to expand LDCs' gains from trade further?
15. What changes are needed in WTO agreements for LDCs to benefit from agricultural trade? From trade in services?
16. Indicate the nature of the present international exchange-rate system and how it affects LDCs.
17. Under what circumstances might a LDC gain from depreciating its currency? What are some of the advantages of depreciation?
18. Why may efforts to achieve a market-clearing exchange rate not improve economic efficiency and growth in a domestic economy that is otherwise not liberalized?
19. Can an LDC attain all three of the following goals: stable exchange rates, free capital mobility, and national control over monetary policy? If not, which goals

should have the highest priorities and what should be the tradeoffs among the various goals?

20. Discuss why LDCs have made so few gains in their attempts at regional economic integration.

21. Should WTO/GATT encourage the expansion of regional integration among LDCs? If not, what alternatives would you recommend?

22. What policies might an LDC undertake to reduce the premium for the black market for foreign exchange?

23. What changes do LDCs want in the international economic order? What progress has been made in implementing these demands? Are any of the demands inconsistent? Are any contrary to LDC interests?

24. Discuss the relative merits of the positions of liberals and the U.N. General Assembly concerning changes in the international economic order.

GUIDE TO READINGS

Frankel and Romer (1999:379–399); Sachs and Warner (1997); and Winters (2004:F10-F15) have discussions of the relationship between trade and growth. World Bank (2004f:40–47) discusses how trade affects productivity.

Krugman and Obstfeld (2003) clearly explain the theory of comparative advantage. Black (1959) analyzes arguments for tariffs. Romer (1994a:5–38) discusses the welfare costs of trade restrictions. Batra (1992) argues against free trade for the United States.

Chang (2002) chides DCs for pulling the protectionist ladder just after using it for their early industrialization. However, Ethier (2002) would reject Chang's approach, pointing out that global tariffs are much lower today than in the 19th century.

David (1991, 1995) and his other writings show how comparative advantage is path-dependent.

Cline (2004) analyzes trade policy and poverty reduction, and trade and income distribution (1997), including a discussion of Wood (1994). Udry (2003) has a clear presentation of the child labor issue. Antweiler, Copeland, and Taylor (2001:877–908) analyze trade and the environment.

World Bank, *Global Economic Prospects (GEP)*, including the 2004 edition cited in Nafziger (2006a), discusses global production networks.

Bhagwati (2002b:33–44) uses arguments of avoiding rent seeking and spurring growth in support of free trade. Bhagwati (2004) discusses *In Defense of Globalization*, Oxford: Oxford University Press.

Mann (1999) shows U.S. comparative advantages from outsourcing overseas.

Kingston (2004:309–320) shows how the WTO's intellectual property rights' rules extends DC market power and harms technological transfer to and imitation by LDCs, a major contributor to the growth of latecomers in the last two centuries.

The IMF's *World Economic Outlook* analyzes recent prospects for trade and growth.

Kojima (1978:134–151) analyzes the differences between U.S. and Japanese MNC investments abroad. Shinohara (1982:32–33, 72–75, 127–128) examines the boomerang effect from imports in reverse or intensification of competition in third markets arising from Japanese expansion of technology to other Asian countries. Shojiro (1992) discusses Japan's borderless Asian economy.

Burfisher and colleagues (2003) show the effect of eliminating farm tariffs and subsidies on world agriculture. Ray et al. (2003) have an insightful analysis of farm subsidies from the U.S. perspective.

See Reisen (1993:21–23) on the impossible trinity.

Mussa (2002) analyzes the Argentina currency crisis; Montes and Popov (1999) the Russian and Asian crises; and Goldstein (1998) the Asian crises.

Goldstein (2002) discusses managed floating for LDCs wishing to exit a currency crisis.

On the major regional trade blocs and their effect on resource allocation, see Frankel (1997), World Bank (2003h:322–324), Schiff and Winters (2003), and Krueger (1999:105–124).

Edwards (1993:1358–1393) surveys the literature on trade liberalization and growth.

Wyplosz (2001) analyzes the effect of the euro on LDCs. For further insights on the euro, growths of the E.U. accession states, and the impossible trinity, see *Finance and Development* 41(2) (June 2004) (http://www.imf.org/external/pubs/ft/fandd/2004/06/index.htm).

Spraos (1983) and Giorgio Ardeni and Wright (1992:802–812) have good discussions of the concepts and controversies concerning terms of trade and the Prebisch–Singer thesis.

On exchange-rate regimes and capital flows, see the special issue of *Annals of the American Academy of Political and Social Science,* Tavlas and Ulan (2002).

Reisen (1993:21–23) explains the difficulty of LDCs' maintaining stable exchange rates, free capital mobility, and national control over monetary policy.

Hufbauer and Schott (1994) and Hufbauer and Schott (1993) have a thorough analysis of the impact of NAFTA on member countries and the costs and benefits of following various sequences toward Western Hemisphere economic integration. Hallett (1994:121–146) and Pohl and Sorsa (1994:147–155) examine what effect the European Union has on trade diversion and creation in LDCs. Schott (2004) examines the United States' scattered free trade negotiations.

Borjas and Ramey (1995:1075–1110) show that foreign competition in highly concentrated industries was an important factor contributing to the increase in the returns to skills and increases in wage inequality in the United States.

Miron and Zwiebel (1995) make the economic case against drug prohibition. They argue that a free market for currently illegal drugs would reduce violence and property crimes. The prohibition of drugs increases their cartelization, thus increasing the marginal benefit and diminishing the marginal cost of violence.

18 Development Planning and Policy Making: The State and the Market

Most people want to control and plan their economic future. The complexity of contemporary technology and the long time between project conception and completion require planning, either by private firms or government (Galbraith 1967). Indeed, the University of Chicago economists Raghuram G. Rajan and Luigi Zingales (2003:293) argue that "markets cannot flourish without the very visible hand of government, which is needed to set up and maintain the infrastructure that enables participants to trade freely and with confidence."

Many growth-enhancing activities require coordinated policy, frequently at the national level. **Development planning** is the government's use of coordinated policies to achieve national economic objectives, such as reduced poverty or accelerated economic growth. A plan encompasses programs discussed earlier – antipoverty programs, family planning, agricultural research and extension, employment policies, education, local technology, savings, investment project analysis, monetary and fiscal policies, entrepreneurial development programs, and international trade and capital flows. Planning involves surveying the existing economic situation, setting economic goals, devising economic policies and public expenditures consistent with these goals, developing the administrative capability to implement policies, and (where still feasible) adjusting approaches and programs in response to ongoing evaluation.

Planning takes place in capitalist, mixed private–public, and socialist LDCs. Capitalist countries plan in order to correct for externalities, redistribute income, produce public goods (for example, education, police, and fire protection), provide infrastructure and research for directly productive sectors, encourage investment, supply a legal and social framework for markets, maintain competition, compensate for market failure, and stabilize employment and prices.

Usually the country's head of government (prime minister or president) assigns the plan to a planning office that includes politicians, civil servants, economists, mathematicians, statisticians, accountants, engineers, scientists, educators, social scientists, and lawyers, as well as specialists in various industries, technologies, agriculture, international trade, and ethnology.

In the 1950s, economists stressed an expert planning agency independent of political and bureaucratic pressures. After many a sophisticated plan lay on the shelf unused, the emphasis shifted to a planning commission directly responsible to politicians and integrated with government departments of industry, finance, commerce,

petroleum, agriculture, health, education, and social welfare, as well as with regional and local government departments and planners.

Economists are ambivalent about integrating the central bank into the government's monetary and fiscal planning. To be sure, most economists favor the integration of monetary policy with the government administration's fiscal policies. Still, because many economists fear that political and administrative leaders will not be vigilant in fighting inflation, these economists recommend that the central bank operate independently of the head of state and government departments.

Takatoshi Ito (1992:89–95) contends that under presidential administration (similar to that of the United States), the incumbent party manipulates financial policy in its effort to be reelected, whereas a parliamentary state (such as that in Japan or India) does not manipulate policies in anticipation of approaching elections, but instead waits to call general elections until times of autonomous economic expansion. Thus, parliamentary governments manipulate the timing of elections, whereas presidential governments manipulate the timing of economic policies.

Do financial policies in democratic states differ from those under authoritarian regimes? Political scientists find no difference between the macroeconomic policies of established democratic and authoritarian governments, but countries undergoing transitions to democracy pursued more expansionary monetary and fiscal policies than before and after the transition and compared to established regimes (Sandbrook 1985; Diamond, Linz, and Lipset, 1988; Haggard and Kaufman 1989:57–77).

State Planning as Ideology for New States

Economic planning in LDCs was limited before their independence (often gained during the 1950s and 1960s). The British and French used development plans (worked out by territorial governments with help from London and Paris) as a basis for colonial aid after World War II. The plans, prepared by administrators with little or no planning background, were usually just lists of investment projects. And no attempt was made to integrate the various economic sectors. However, they did have the virtue of being carried out, in contrast to many postindependence plans.

Many intellectuals, nationalist leaders, and politicians believed that laissez-faire capitalism rigidly adhered to during the colonial period was responsible for slow LDC economic growth. So, once independence was granted, nationalists and anti-colonialists pushed for systematic state economic planning to remove these deep-seated, capitalistic obstacles. Such sentiments were expressed in a statist (usually called socialist) ideology that stressed government's role in assuring minimum economic welfare for all citizens.

Many third-world leaders, even from mixed economies, such as Nigeria, Kenya, India, and Sri Lanka, agreed with Kwame Nkrumah (Ghana's president, 1957–66) who wrote in 1965 that "the vicious circle of poverty, which keeps us in our rut of impoverishment, can only be broken by a massively planned industrial undertaking." He was skeptical of the market mechanism's effectiveness, argued for the "uncounted advantages of planning," and contended that government interference

in the economic growth of developing countries is "universally accepted." Vigorous state planning would remove the distorting effects of colonialism and free a LDC from dependence on primary exports.

And as in many LDCs, the business class was weak at independence, the argument for a major state role in spearheading economic development was strengthened. Yet decisions concerning government size were usually based less on economic reasoning than on ruling elites' interests. Most third-world elites were politicians, professional administrators, and bureaucrats and wanted to protect their interests from business-people. Elites perceived anarchy in the market, which reinforced by their lack of control, produced a statist ideology.

Afro–Asian Socialism

African and Asian socialism did not coincide with the Western socialist concept of the ownership of most capital and land by the state (see Chapter 2). Instead, the Afro–Asian variety usually included the following: a high-level of state ownership of the **commanding heights** (major sectors of heavy industry, metallurgy, military industries, mining, fuel, transport, banking, and foreign trade), a penchant for public control of resource allocation in key sectors, a deemphasis on foreign trade and investment, a priority on inward-looking production, and a rapid indigenization of high-level jobs (Acharya 1981: 117–118).

Dirigiste Debate

From after World War II to the early 1980s, many development economists favored a major role for the LDC state in promoting macroeconomic stability, national planning, and a sizable public sector. In the early 1980s, a series of World Bank and IMF reports (for example, World Bank 1981i) emphasized reversing the LDC government sector's overextension. Indeed, World Bank and IMF conditions for balance of payments lending to LDCs sometimes required privatization of LDC state-owned enterprises, a part of policy reforms that stressed state enterprise reform and competition policies in both private and public sectors (Mosley 1988:125–126).

The emphasis on privatization, discussed in Chapter 19, began with the 1981 to 1986 World Bank presidency of former New York bank president A. W. Clausen and continued under former U.S. Congressperson Barber B. Conable (1986–91), former New York bank president Lewis T. Preston (1991–95), and former New York investment banker James D. Wolfensohn (1995–2005). The emphasis was not just an extension of President Ronald Reagan's and Prime Minister Margaret Thatcher's domestic economics to U.S., British, and Western-dominated multilateral aid and lending programs, but also an LDC response to the failure of public enterprise to match expectations, especially when they operated under a **soft budget constraint**, an absence of financial penalties for enterprise failure. Frequently, LDC governments provided massive subsidies to public enterprises that had been expected to produce an investible surplus.

The University of London and University of California – Los Angeles economist Deepak Lal (1983) criticizes development economists' ***dirigiste*** dogma: a view that standard economic theory does not apply to LDCs, the price mechanism has to be supplanted by direct government controls, and resource allocation is of minor importance in designing public policies. Lal contends that the demise of development economics would be conducive to LDC economics and economies.

Critics charge that Lal does not define development economists to include all authors applying economics to LDCs but only those authors with whom he disagrees. Moreover, Lal's description of their views is a caricature: Dudley Seers, an example of Lal's *dirigistes*, rejects a *rigid adherence* to standard economic theory (see Chapter 1), favors income transfers rather than price controls to redistribute income, and criticizes detailed physical planning. Nor is Lal correct in attributing Taiwan's and South Korea's success to little governmental direction, nor the World Bank in linking rapid growth in Malawi in the 1970s to low interference in prices. Taiwan and Korea both promulgated land reform in the late 1940s and early 1950s; provided subsidies for farm products and their inputs beginning in the 1960s; and actively used government incentives, controls, and protection to promote industries for export expansion since World War II. Critics of the World Bank argue that Malawi's agricultural policy in the 1970s had sizable price distortions and the transferring of resources from peasant agriculture to commercial agriculture and industry overstated the growth accompanying falling peasant agricultural productivity and declining average real incomes for the population as a whole. The discussion in this chapter reflects a growing consensus among development economists on planning, the market, and the public sector somewhere between the views of Lal and his straw men and women, the *dirigistes* (Kydd and Christiansen 1982:355–74; World Bank 1983i:60–63; Fransman 1984:50–56; Hamilton 1984:38–43; Kydd 1984; Moore 1984:57–64; Wade 1984:65–70; Stewart 1985:282–292).

Scope of the Chapter

We look first at state planning as an ideology for nations that have gained independence since World War II. The second section examines Soviet planning, and the third section examines Indian planning and their implications for LDCs. The fourth part outlines promarket and proplanning arguments. Fifth, we look at the need for indicative planning in most LDCs. Sections 6–8 analyze planning goals and instruments, plan duration, and the limitations of planning models. In Section 9, we examine LDC economic data, emphasizing development of an input–output table. The last two sections deal with public policies toward the private sector and public expenditures.

Soviet Planning

Until the late 1980s, many LDCs turned to the Soviet Union for lessons in state planning. From 1928 through Mikhail Gorbachev's economic restructuring (perestroika) during the late 1980s, the Soviet **controlling plan** authorized what each key sector

enterprise produced and how much it invested. Yet even Soviet planning, probably more comprehensive than any other country ever attained, was not so totally planned and rigidly controlled as you might think. Soviet planning began modestly. During the 1918 to 1921 civil war, enterprises ignored planning directives. Not until 1925 to 1926 did Gosplan, the State Planning Committee of the USSR, which consults with ministries, republics, and enterprises, have the personnel and authority to plan detailed input–output relationships.

In the centrally planned key sectors (heavy industry, much of light industry, and a small part of agriculture) in the quarter century after World War II, there was much local, extraplan discretion – government simply could not control all operations details. For example, bad weather or shortages sometimes prevented delivery of essential materials so that enterprise managers adjusted by hoarding, bartering, and other informal arrangements. In the late 1980s, over half of Soviet GNP remained out of the purview of planners and under the control of local officials, enterprises, and even private markets. These activities, however, generally depended on state policies for financial controls, purchasing, pricing, wage schedules, labor mobility, education and training, turnover taxes, foreign trade, and so forth (Gregory and Stuart 1994).

Leon Trotsky recognized the difficulties of comprehensive Soviet centralized planning early in its history. Trotsky (1931:29–30, 33), Communist party leader exiled by Joseph Stalin, criticized Soviet bureaucratic and centralized economic management:

> If there existed the universal mind that projected itself into the scientific fancy of Laplace; a mind that would register simultaneously all the processes of nature and of society, that could measure the dynamics of their motion, that could forecast the results of their interreactions, such a mind, of course, could *a priori* draw up a faultless and exhaustive economic plan, beginning with the number of hectares of wheat and down to the last button for a vest. In truth, the bureaucracy often conceives that just such a mind is at its disposal; that is why it so easily frees itself from the control of the market and of Soviet democracy. . . . The innumerable living participants of the economy, state as well as private, collective as well as individual, must give notice of their needs and of their relative strength not only through the statistical determination of plan commissions but by direct pressure of supply and demand. The plan is checked, and, to a considerable measure, realized through the market. . . . Economic accounting is unthinkable without market relations.

Although Soviet leader Gorbachev (1985–91) believed that economic restructuring was essential in reversing slow U.S.S.R. growth after 1970, he decentralized without providing the enterprise freedom and market incentives that were essential.

Indian Planning

In 1950, India was the first major mixed LDC to have its own planning commission. English democratic socialism as well as Soviet industrial planning attracted Jawaharlal Nehru, prime minister at India's independence in 1947. India's economic policies for its first five-year plans (and several interim plans) through 1978 suffered from the paradox of inadequate attention to programs in the public sector and too much control over the private sector. Thus, we had Indian planners

frequently choosing public sector investments on the basis of rough, sketchy, and incomplete reports, with little or no cost–benefit calculations for alternative project locations. And the government, having selected the project, often failed to do the necessary detailed technical preparation and work scheduling related to the project. The bureaucracy was slow and rigid, stifling quick and imaginative action by public sector managers. (Even public firms had to apply for materials and capital import licenses a year or so in advance.) Poorly stated criteria for awarding input licenses and production quotas led to charges of bribery, influence peddling, and ethnic or political prejudice. Key public sector products were often priced lower than scarcity prices, increasing waste and reducing savings. Furthermore, political involvement in public enterprises meant unskilled labor overstaffed many projects.

Jagdish N. Bhagwati and Padma Desai's (1970) study shows that such planning problems led to profit rates for public enterprises that were lower than for indigenous, private operations even when adjusted for externalities. This inefficiency explains why the Indian public sector, despite its domination of large industry, made no net contribution to the country's 1990 total capital formation; indeed dissavings from public sector losses, which the government budget covered, reduced capital formation (U.N. 1992; Nafziger 1997:385)!

Indian planners tried to influence private investment and production through licensing and other controls. These controls were intended to regulate production according to plan targets, encourage small industry, prevent concentrated ownership, and promote balanced regional economic development.

The Indian government's award of materials and input quotas at below-market prices (before the 1991 reform) hampered private industrial efficiency.

1. It subsidized some firms and forced others to buy inputs on the black market or do without.
2. Favoring existing firms discouraged new-firm entry. And inefficient manufacturers sold controlled inputs on the free market for sizable profit.
3. Businesspeople were unproductive, because they were dealing with government agencies and buying and selling controlled materials.
4. Capital was often underutilized, because government encouraged building excess capacity by awarding more materials to firms with greater plant capacity.
5. Entrepreneurs inflated materials requests, expecting allotments to be reduced by a specific percentage.
6. Businesspeople used or sold all materials within the fiscal year to avoid quota cuts the following years.
7. A shortage of controlled inputs could halt production, because the application process took several months.
8. Large companies, which were better organized and informed than small enterprises, took advantage of economies of scale in dealing with the public bureaucracy.
9. Entrepreneurial planning was difficult because of quota delay and uncertainty (Bhagwati and Desai 1970; Nafziger 1978:114–119).

India's planners distrusted the market in resource allocation, especially when scarcities were acute. Central planners, however, lacked the information essential that more decentralized decision makers have. Once the licensing system was created, politicians, bureaucrats, and sheltered businesses and their workers used centralized planning logic to define their interests and to oppose reform, and Indian economists also rationalized the system. India's concern about avoiding monopolistic concentration contributed to the detailed physical planning that meant the virtual elimination of contested markets by foreign and other domestic competitors (Bhagwati 1993:53–54).

India increasingly realized the inadequacies of the bureaucracy in controlling private output and prices and the costs of licensing and quota policies. In the 1980s, the Indian government slowly increased efficiency and savings through improved public sector planning, relaxed production and materials licensing, import restrictions, and other controls on private business, increasing efficiency and savings. Yet these policies increased economic growth only slightly. India's 1991 budget, debt, and balance-of-payments crises woke the government to the stifling nature of licensing and controls and the need for liberalization reforms. Growth rates accelerated after 1991, when India's stabilization and policy reforms included rupee devaluation and increasing convertibility, import barrier reductions, the privatization of numerous state enterprises, the deregulation of industry, decreased restrictions on foreign investment, the liberalization of capital markets, and cutbacks in income and wealth taxes.

The Market versus Detailed Centralized Planning

Although the Soviet experience indicates how much of an economy remains beyond the control of central planners, the Indian experience suggests the costs of intervention in mixed economies. The inability to work out in-depth programs in the public sector, and excessive private-sector regulation, are endemic in many other mixed economies, including Nigeria and Pakistan.

The plan and the market are separate ways of coordinating transactions. Using the market adds certain costs: discovering relevant prices and negotiating and concluding separate contracts for each exchange transaction. To reduce risks and other costs, managers (together with suppliers and workers) sign long-term contracts rather than making agreements for each separate transaction. Planning and organizing eliminate certain costs of the market system but also increase large-scale diseconomies – diminishing returns to management. A balance between using the market and a planning organization is reached when "the costs of organizing an extra transaction . . . become equal to the costs of carrying out the same transaction by means of an exchange in the open market" (Coase 1937:396; Williamson 1981:1537–1568). In this section, we focus on the free market as an alternative to state planning.

PROMARKET ARGUMENTS

The market efficiently allocates scarce resources among alternative ends. First, consumers receive goods for which they are willing to pay. Second, firms produce

commodities to maximize profits. If the resulting income distribution is acceptable, consumption and production are socially efficient. Third, production resources hire out to maximize income. Fourth, the market determines available labor and capital. Fifth, the market distributes income among production resources and, thus, among individuals.

The market provides incentives for economic growth. Consumers try to increase income to acquire more goods. Investors and innovators profit from the market. People invest in human capital and firms in material capital, because such capital earns an income.

The market stimulates growth and efficiency automatically, without a large administration on centralized decision making. Thus, it conserves on skilled personnel, a scarce resource in LDCs. The market needs little policing other than a legal system enforcing contracts. When government abandons the market and starts allocating scarce goods and concessions (for example, foreign currency, licenses, and materials), corruption, favoritism, bribery, and black markets are more likely to thrive.

Ronald Coase, an economist from the University of Chicago, argues that planning agencies and firms reach rapidly diminishing returns to management under centralized planning. Coase's position is:

> Firms exist because some transactions internal to firms are less costly than similar transactions carried out in markets. The limits of the firm depend on cost comparisons at these margins. . . . "Central planning" within firms is disciplined by competition among them, so long as resources are free to move to their highest valued uses. (Rosen 1991:76, including Coase 1937:386–405)

But under Soviet-type economy-wide central planning, most resources lack this freedom. Moreover, Oliver Williamson argues that the number of prices essential to decentralize a complex organization increases multiplicatively with size. The major cost explosion is that of monitoring labor and managers. When state socialism suppresses the market, the cost of monitoring people explodes, as reward and penalty systems no longer result in self-enforcing contracts (Williamson 1967:123–139; discussion of Williamson's views by Rosen 1991:82; see also Malmgren 1961:399–421).

PROPLANNING ARGUMENTS

Market decisions do not produce the best results when the market fails, as with environmental degradation, HIV/AIDS prevention, measles vaccinations, and labor training. Social profitability exceeds private profitability when external economies (for example, vaccinations, sex education, and the training of labor) are rendered free by one economic unit to consumers or other producers. External diseconomies (pollution, let us say) mean private profitability exceeds social profitability (see Chapters 5, 11, and 13). National planners can choose investment projects for social profitability rather than for their internal market rates of return.

Social and private profitability also diverge in a market economy when there are monopolistic restraints and other market failures. A monopolist produces less and charges higher prices than does a competitive firm. National planners reduce a project's monopoly profits but increase social profits by expanding output and

lowering prices to the competitive equilibrium. Industry and enterprise managers in a planned economy will however restrict output volume if they are rewarded on the basis of profits (Johnson 1962:152–163; Lange and Taylor 1965; Bergson 1967: 657–665).

Additionally, government needs to produce the public or collective goods, schools, defense, sewage disposal, and police and fire protection that the market fails to produce (see Chapter 19).

Moreover, the free market may not produce so high a saving rate as is socially desirable. A government generating surplus from its own production, setting low procurement prices for state trading monopsonies, and levying turnover taxes can usually save in excess of households and firms. Centrally planned economies have had higher rates of saving than market economies.

Furthermore, relying on the market assumes that people are well informed and want to maximize gains. Should not centralized planning replace the market in LDCs where this assumption is false? The answer is not clear-cut. If prospective private entrepreneurs lack information and motivation, the planner's role may be enlarged. The planning agency can ease its task by disseminating information to make the market work more effectively. Although the peasant preoccupied with family survival may not be an income maximizer (Chapter 7), empirical studies demonstrate that the LDC industrialist, trader, and commercial farmer respond to income and price incentives, suggesting that the market works well.

MARKET SOCIALISM

The income distribution the market produces – partly dependent on the skills and property of the privileged and wealthy (Chapter 11) – may not be just or socially desirable. Yet the greater income inequality of capitalist economies may result less from the market than from unequal holdings of land and capital. The Polish economist Oskar Lange's model of decentralized **market socialism** combined the advantages of market allocation with more uniform income distribution by dividing the returns from social ownership of nonhuman, productive resources among the whole population. Lange's approach assumed that individuals allocated their limited income among consumer goods and services and provided labor services just as in capitalist economies. Socialist enterprises produced where product price equaled marginal cost (the competitive profit maximization rule), while combining factor inputs to minimize the average cost of production. Industrial authorities chose the rate of expansion or contraction of the industry as a whole. Central planners used trial and error to set prices at equilibrium (where shortages and surpluses disappeared), adjusted prices for externalities through taxes and subsidies, and allocated returns from property owned collectively by society.

Critics argued that pricing consistent with maximum profits would encourage monopolistic behavior by enterprise and industry managers in concentrated industries; planning decisions would not be compatible with political freedom; and central planners would have the impossible task of setting millions of prices for individual products and subproducts (Lange and Taylor 1965; Gregory and Stuart 1974:311–319). But decentralized enterprises could set prices rather than central

planners, who need only intervene to prevent monopoly pricing. One example close to Lange's model, the Soviet New Economic Policy, 1921 to 1927, which enabled the economy to recover rapidly from the chaos and disruption of revolution and civil war, was later replaced because the Communist party bureaucracy lacked control over the economy.

WORKER-MANAGED SOCIALISM: THE FORMER YUGOSLAVIA

Branko Hôrvat's historical review of the last two and one-half century indicates that, in large part, market or decentralized socialism has failed, resulting in a lapse to capitalism or statism. But the inference that market socialism is "an unrealisable utopia is clearly false." The recurrent attempts despite bitter opposition from vested interests suggests to Hôrvat that the few successes of market socialism result not from its unfeasibility but from its threat to established interests (Hôrvat 1975b:39–40).

Economists in the former Yugoslavia, the nearest contemporary approximation of Lange's model, argued that socialist planning must be managed by workers to be democratic and must use the market for resource allocation to be efficient. The Yugoslav experience with worker-managed socialism is instructive, despite the breakup of the country in the 1990s from ethnic conflict.

From 1948 to 1951, each firm elected a workers' council, which hired a professional manager to carry out the council's decision. Workers shared in income from the enterprise, after subtracting material and other costs, based on a democratically agreed-on income distribution determined by the intensity and quality of people's labor. Individuals sought employment anywhere, and firms were free to hire a particular person. Generally, the labor-managed firm maximized net income per member (Hôrvat, Markovic, and Supek 1975, especially Hôrvat 1975:Vol. 1, pp. 307–327; and Vanek 1975:Vol. 2, pp. 135–140.)

From 1959, a decade after worker management began, until 1979, Yugoslavia's real GNP grew 6 percent annually, and the labor force was transformed from primarily peasant agriculture into modern sector employment. During the 1980s, however, real GNP per capita declined, the unemployment rate averaged 10–15 percent, strikes were widespread, annual inflation averaged more the 35 percent, and total external debt was the 10th largest in the world ($21 billion in 1988). Workers' councils were limited by state regulations (including prices) and by political intervention of the League of Communists of Yugoslavia (LCY). Moreover, Yugoslavia's 1976 reform established the basic organizations of associated labor (BOs), a separate autonomous planning unit for each department in the firm. The BOs, in addition to workers council, trade union, business managers, their administrative and technical staff, the LCY, and the local community, complicated enterprise decision making, introducing multiple checks and balances, so that the firm's hierarchy was ill-defined. The need for consensus among so many units gave many people (for example, discontented, even striking, work units, such as janitors or carpenters) the capacity to impede and few people the power to implement policies. When coalitions broke down, the state (federation, province, or local community) or LCY bureaucracy could dissolve disruptive workers' councils, recall business managers, or withhold infrastructure or funds.

Other weaknesses of the Yugoslav self-managed socialism were the lack of participation of rank-and-file employees in important policy making, the dependence of pay on factors outside BO control (for example, closing down production because suppliers failed to deliver an essential input), the unconcern for long-run performance (considerable turnover of workers, who lack ownership shares in the firm), neglect of externalities, widely varying income among workers doing the same job in different firms, lack of a labor market, the state's soft budget constraint (an absence of financial penalties for enterprise failure), restricted entry of new firms to increase competition, collusion between vertically and horizontally linked firms, investment choice based on negotiations and not benefit–cost analysis, overborrowing (resulting from no interest charge), disincentives to expand employment, too little investment from current surplus, and too many incentives for highly capital-intensive production (from pressures to distribute higher incomes per member) (Nove 1983:133–141; Schrenk 1987:339–369; Narayanswamy 1988:2052–2054).

CONCLUSION

Despite Yugoslavia's experience during the 1980s, market socialism's appeal is enhanced by China's post-1978 market-oriented reforms (Chapters 3, 7, and 19). Market socialism may appeal to LDCs that oppose private ownership but lack the administrative service and planning capability to run a centralized socialist economy. Still, because "socialism with Chinese characteristics" is evolving in an ad hoc manner, we cannot be certain how long LDCs will have a prominent market socialist model.

Indicative Plans

The weaknesses of Soviet planning discussed before may have been minor compared to those of LDC planning agencies in the 1970s and 1980s that insisted that partial planning give way to comprehensive planning. For in economies with a large private sector, government planning can only be partial. Chapter 3 pointed out the difficulty of applying Fel'dman's Soviet planning model to mixed LDCs where planning did not represent a binding commitment by a public department to spend funds. Few third-world planning commissions have had the skills and authority needed for Soviet-type planning.

Most mixed or capitalist developing countries are limited to an **indicative plan**, which indicates expectations, aspirations, and intentions, but falls short of authorization. Indicative planning may include economic forecasts, helping private decisionmakers, policies favorable to the private sector, ways of raising money and recruiting personnel, and a list of proposed public expenditures – usually not authorized by the plan, but by the annual budget.

Planning Goals and Instruments

Planning sets economic goals. Because government hires the planners, political leaders set the goals, which may or may not reflect the people's priorities. Possible planning

goals include rapid economic growth, reduced poverty and income inequality, high basic-needs attainment, greater educational attainment, greater employment, price stability, lower international economic dependence, greater regional balance, and adequate environmental quality. Some of the goals, such as reduced poverty and inequality and high basic-needs attainment, are complementary rather than independent. Yet when there are conflicts among goals, political leaders must decide what relative weight to give to each goal. In this case, about all planning professionals can do is interpret economic data to identify goals (for example, the need to reduce a region's rural poverty, cope with a balance of payments crisis, or slow down inflation), clearly state them, and formulate the costs of one goal in terms of another.

Planners face such questions as follow: How much real growth should be sacrificed to reduce the rate of inflation by one percentage point? How much would increased capital formation lessen low-income consumption? How much GNP would have to be given up to achieve an acceptable level of independence from world markets? How much output should be sacrificed to attain a desired level of environmental quality?

Planners often express goals as **target variables** – for example, annual GNP growth of 6 percent; output growth of manufacturing, 8 percent, and, of agriculture, 5 percent; poverty reduced by 1 percentage point of the population; and a balance of payments deficit not in excess of $200 million. Goals are achieved through **instrument variables**, such as monetary, fiscal, exchange rate, tariff, tax, subsidy, extension, technology, business incentive, foreign investment, foreign aid, social welfare, transfer, wage, labor training, health, education, economic survey, price control, quota, and capital-rationing policies (Chenery 1958:55–60).

The Duration of Plans

The availability of instrument variables depends on the length of time in which the goals are to be achieved. To slow down labor force growth takes 15 to 20 years, to build a dam a decade, but to increase free rice allotments per capita may take only a few weeks.

Short-term plans focus on improving economic conditions in the immediate future (the next calendar or budget year); *medium-term plans*, on the more distant future (say, a five-year plan); and *long-term* (or perspective) *plans*, on the very distant future (15, 20, or more years).

Long-term goals must serve as a background for medium- and short-term plans. Medium-term plans, which often coincide with government office terms, are such that investment returns begin to occur after the first year or so of the plan. These plans can be more precise than long-term plans.

A medium-term plan can be a **rolling plan**, revised at the end of each year. As a planning commission finishes the first year of the plan, it adds estimates, targets, and projects for another year to the last year. Thus, planners would revise the five-year plan for 2004 to 2008 at the end of 2004, issuing a new plan for 2005 to 2009. In effect, a plan is renewed at the end of each year, but the number of years remains the same as the plan rolls forward in time.

However, a rolling plan involves more than a mechanical extension of an existing plan. It requires rethinking and revising the whole plan each year to set targets for an additional year. Built into the rolling plan is a regular review and revision procedure (in effect needed for all plans, whatever their range). Yet, rolling plans have sometimes proved too difficult for most LDCs to manage. A simpler way of bringing a medium-term plan up to date is by implementing part of it through the short-term plan.

Short-term (usually annual) plans carry out government policy in connection with a detailed budget. Primarily finances, plan expertise, and the progress made in feasibility studies and projects started in previous periods determine the size and composition of an annual plan (Tinbergen 1967:36–38; Waterston 1969:120–133).

Planning Models and Their Limitations

Planners need a bird's-eye view of macroeconomic relationships before determining programs, expenditures, and policies, and a simple aggregate model can provide this overall perspective. Most macroeconomic models for the United States are complicated, sometimes consisting of hundreds of variables and equations. But most LDCs cannot afford such complexity. And even if skills, funds, and data were available, the planners' policy control in mixed and capitalist LDCs is too limited for a comprehensive aggregate model to have much practical value.

The Nobel laureate W. Arthur Lewis criticizes planning agencies in data-poor, mixed LDCs that hire economists to formulate a complex macroeconomic model. He believes the time spent is not worth the effort. He ironically notes that

> The principal danger of a macroeconomic exercise lies in its propensity to dazzle. The more figures there are in a Plan, produced by an army of professionals who have labored mightily to make them consistent, the more persuasive the Plan becomes. Attention shifts from policy to arithmetic. Consistency can be mistaken for truth. Revision is resisted. Yet the Plan is not necessarily right merely because its figures are mutually consistent. . . . Once the point is grasped that mathematical exercises do not of themselves produce truth, a Plan with figures is no more dangerous than a Plan without figures. (Lewis 1966:16–17)

Many planners still think that planning primarily involves agreeing on macroeconomic targets for investment and output. Lewis (1967:35) notes that when Nigeria's First National Development Plan, 1962 to 1968, was published,

> Argument broke out as to whether the planners had "chosen" the right rate of growth, whether they had used the right capital-output ratios, and whether they had determined correctly the amount of capital which private entrepreneurs would be required to invest. All such discussion misconceives what the government can actually do.

For Nigeria, characterized in the 1960s by its Economic Planning Unit head as "planning without facts," Lewis maintains that you can make nearly as good a development plan without national income projections, capital-output ratios, and other such econometric manipulations as with them (Stolper 1966; Lewis 1967:35).

Generally, macroeconomic planning models used in LDCs with large private sectors have been ineffective. Actual policies and economic growth in such countries

have little relationship to the plan's instrument and target variables. Much of LDC economic growth since the early 1960s has gone in directions unforeseen by the plan or if included in the plan, would have occurred even in the plan's absence (Zuvekas 1979:191)!

Thus, LDC planners should generally not be judged by how well they have reached their target growth rates. The U.N. Center for Development Planning, Projections, and Policies observed that Nigeria's real growth in gross domestic product from 1970 to 1974 was 12.3 percent per year compared to an annual target of only 6.2 (Center for Development Planning, Projections, and Policies 1977:1–69).

But this rapid growth had little to do with plan investments. The Nigerian government spent only 63 percent of planned public capital. Planners did not clearly identify feasible industrial projects nor give details of supporting government policies. And poor coordination and personnel shortages resulted in inadequate preparatory work by accountants, economists, engineers, managers, and planners. In reality, most Nigerian growth could be explained by factors largely outside the planner's purview – the unexpectedly rapid oil growth and sharply increasing oil prices.

Nonetheless, macroeconomic models may be useful in forecasting and projections, enabling decision makers to see the economy from a national perspective. And if a forecast is based on consultation with the economic ministries and private firms, as in early post–World War II Japan, it may give investors greater confidence in the economy's forward movement. But although planning models have some value, Lewis contends that the most important parts of the plan are the documents showing how to improve data collection, raise revenue, recruit personnel, and select and implement projects – topics discussed later.

Three professionals play an especially important role in planning: (1) the person with treasury experience, used to dealing with government departments and planning public expenditures; (2) the practical economist familiar with the unique problems that emerge in LDCs to help formulate public policies; and (3) the econometrician to construct **input–output tables** to clarify intersectoral economic relations (Lewis 1966:16–17).

Input–Output Tables and Other Economic Data

Economic data in many LDCs are of little value. Because some facts needed for decision making may be unavailable, planners may have to improvise.

As pointed out in Chapter 2, small errors in GNP may have a major impact on economic growth.

Planning in a country with poor economic data should concentrate on organizing an effective census bureau and department of statistics, hiring practical field investigators and data analysts, and taking periodic economic surveys. Sound development planning requires information on national income, population, investment, saving, consumption, government expenditure, taxes, exports, imports, balance of payments, and performance of major industries and sectors, as well as their interrelationships. (Eele [1989:431–38] opposes government departments distinguishing between data collection and policy analysis.)

THE INPUT–OUTPUT TABLE

The most useful technique for describing these interrelationships is the input–output table, illustrated with interindustry transactions in Papua New Guinea (Table 18-1). When divided horizontally, the table shows how the output of each industry is distributed among other industries and sectors of the economy. At the same time, when divided vertically, it shows the inputs to each industry from other industries and sectors.

Table 18-1 is more simplified than usually used in planning, but it is realistic in other respects. It consolidates original 46 productive sectors into 11. An input–output table used for planning typically includes from 40 to 200 sectors, depending on how much aggregation (or consolidation) is desired.

Even most sectors from a 200-row, 200-column table require aggregation from several industries. Furthermore, sector worksheets may vary widely in detail and quality. The sectoral relationships of inputs to output for a data-poor economy's first table may be based not only on published sources, government department documents, and interviews and surveys but also on estimates from similar economies or even educated guesses.

Frequently, disaggregation may be an advantage, that is, having a detailed breakdown of industries and sectors. If the table is used to forecast, a detailed classification by industry would reveal bottlenecks that might occur during output expansion. Thus, the disaggregated input–output table would show how much the electronics and wire industries must be expanded beyond existing capacities for telecommunications to grow (Discussion of input–output analysis borrows from Miernyk 1965:8–57; Thirlwall 1977:219–234; Kenessey 1978:278–290; Evans and Hoffenberg 1952:97–142; and Leontief 1966).

The upper left-hand quadrant of Table 18-1 records interindustry transactions – the delivery of output from all sectors (industries) to all other sectors of the economy for production use. In this quadrant, sectoral outputs become inputs in other sectors.

The columns show the structure of inputs for a given sector. Thus, the agricultural sector uses \$0.04 million of inputs from the fishing, forestry, and mining sector, \$9.05 million from the manufacturing sector, \$0.48 million from building and construction, \$3.91 million from transport and communication, \$6.43 million from commerce, \$0.77 million from governmental services, and \$1.45 million from business expenses. In addition, various agricultural units use \$1.89 million inputs from other of agriculture.

The rows, by contrast, show the output distribution of the same sectors. The first row of Table 18-1 shows the output of agriculture to be used in the same sector (\$1.89 million), in manufacturing (\$7.86 million), in education and health (\$0.51 million), in government services (\$0.35 million), and in business expenses (\$0.13 million).

To read the table, remember the following simple rules:

1. To find the amount of purchases from one sector by another, locate the *purchasing industry* at the top of the table, then read *down the column* until you come to the *processing industry*. (For example, the education and health sector purchases \$4.80 million of inputs from transport and communication.)

TABLE 18-1. Input–Output Table, Papua New Guinea ($ million purchasers values)

Outputs / inputs	Purchases by intermediate users: 1 Ag	2 Ffm	3 Mfg.	4 Bc	5 Tc	6 Cm	7 Eh	8 Gs	9 Os	10 Be	11 Nmp	Final demand purchases: Pers. Cons.	Net current Exp.[a]	Gross domestic capital: Public	Private[b]	Exports	Total output
Sales of intermediate inputs by processing sectors																	
1 Agriculture	1.89		7.86				0.51	0.35		0.13		17.56			6.20	80.21	111.71
2 Fishing, forestry, mining	0.04		10.53	0.05			0.06	0.04				3.46			0.10	209.80	224.08
3 Manufacturing	9.05	1.66	17.01	40.51	12.21	2.65	2.43	7.04	1.61	2.61		76.52		1.10	2.60	46.78	223.78
4 Building construction	0.48	0.56	0.36	0.61	0.22	0.66	1.15	15.19	1.05	0.08				61.10	57.27		138.73
5 Transport, communication	3.91	0.83	6.32	3.47	3.51	1.51	4.80	14.54	0.21	11.80		16.94		0.40	0.30	13.17	81.71
6 Commerce	6.43	3.00	25.52	7.43	4.11	0.70	0.40	0.24	0.33	1.60		23.99		1.30	8.55	5.41	89.01
7 Education, health		0.10							0.06			4.70	60.40			0.10	65.36
8 Govt. services, N.E.I.	0.77	0.34	0.22	0.95	0.41	1.59	0.01	0.17	5.51	0.35			106.55	11.60		0.36	128.83
9 Other services			0.03		0.15	8.31	0.19	0.71		9.33		20.71	7.60			7.81	54.84
10 Business expenses	1.45	4.08	6.86	7.25	2.80	13.94	0.52	1.92	4.48							3.87	47.17
11 Nonmarket production												219.00		35.70	4.40		259.10
Payments for primary inputs																	
Wages & salaries																	
Indigenes	18.31	8.65	14.54	12.57	9.87	8.19	18.43	23.58	13.05								127.19
Nonindigenes	3.34	9.90	20.66	14.78	15.82	11.69	26.34	46.19	11.11								159.83
Operating surplus[c]	58.03	122.12	44.47	7.76	7.56	31.39	1.84	0.31	12.57		259.10						545.15
Depreciation	2.91	32.52	8.97	5.54	9.89	4.74	0.08	0.25	2.76								67.66
Net indirect tax	0.55	7.22	19.79	1.85	1.46	1.19	0.06	0.04	0.49	1.02		13.16		0.20	3.48	2.34	52.85
Imports, c.i.f.	7.55	33.10	40.64	35.96	13.70	2.45	8.54	18.26	1.61	20.25		96.43		24.60	60.02	9.51	372.62
Sales by final buyers															−0.42	0.42	
Total input	114.71	224.08	223.78	138.73	81.71	89.01	65.36	128.83	54.84	47.17	259.10	492.47	174.55	136.00	142.50	379.78	2,572.62

[a] Net current expenditures of public authorities, missions, and financial enterprises.
[b] Including additions to stocks.
[c] Including indigenous nonmarket income.

Source: Parker 1974:369.

2. To find the amount of sales from one sector to another, locate the *selling industry* along the left side of the table, then read *across the row* until you come to the *buying industry*. (Thus, the building construction industry sells \$0.36 million of output to the manufacturing industry.)

Although the upper-left quadrant records the sale of intermediate inputs from one sector to another, the major part of the lower-left quadrant gives the payment, by sectors, to foreigners for imports and to production factors for wages, salaries, profits, interest, and rent. In the farthest right column, total factor payments (such as \$127.19 million wages and salaries to indigenes) and depreciation all involve payments by intermediate industries. Total imports (\$372.62 million) and net indirect taxes (\$52.85 million) in the last column however include direct payments by final demand (consumption, investment, and export) purchases, as well as intermediate purchases.

Intermediate inputs from the upper left plus primary inputs from the lower left equal total inputs, for example, \$114.71 million for agriculture. This figure equals agriculture's total output, \$114.71 million, the sum of intermediate inputs and final demand, which consists of consumption, capital formation, exports, and net current expenditure of public authorities, missions, and financial enterprises. Total input equals total output for all intermediate input sectors.

You would not expect the total of any of the individual rows of the primary inputs to equal the total of any of the final demand columns. But the individual differences must cancel out for the entire economy. As is true of any single processing sector, *total* outlays must equal *total* outputs for the economy as a whole.

The total output in the input–output table for Papua New Guinea, \$2,752.62 million, is far in excess of GNP for the same year, \$952.68 million, calculated on the income side as factor payments (wages and salaries, and operating surplus), depreciation, and net indirect taxes, or on the expenditures side as final demand purchases minus imports. Every effort is made to eliminate double counting in computing the components of GNP. But because the input–output table measures all *transactions* between sectors of the economy, the value of goods and services produced in a given year is counted more than once. Since some goods will enter into more than one transaction, their value must be counted each time a different transaction takes place. What we have is an accumulation of value added at each stage of the production process until the good is acquired through final demand.

THE INPUT–OUTPUT TABLE'S USES

Analysis based on the input–output table has a number of uses in planning. Data needed to construct the table provide sectoral information that may become invaluable in other aspects of planning. But, even more important, if the plan sets a certain level of final demand and indicates which sectors are to produce it, then the detailed interrelationships and deliveries can be well approximated by tracking through the table the direct and indirect purchases needed. Doing this allows the planner to explore the implications of alternative development strategies. Input–output analysis provides a set of consistent projections for an economy. It

broadly indicates the economic structure that might emerge given a particular development strategy. Input–output analysis shows the sectoral changes that must occur in the growth process in a way no aggregate macroeconomic model can do.

Assume that planners in Papua New Guinea wish to double building and construction from \$138.73 million to \$277.46 million. This expansion requires additional fishing, forestry, and mining production of \$0.05 million, manufacturing output of \$40.51 million, building and construction of \$0.61 million, \$27.35 million in wages and salaries, and \$35.96 million of foreign exchange for imports (to name just a few of the added inputs column 4, Table 18-1, indicates are needed). However, when the manufacturing sector sells more of its output to the building and construction industry, manufacturing industry's demand for the products of agriculture, fishing, forestry, mining, and so on, will likewise increase – the amount of the increase depending on the technical coefficient that relates the amount from an intermediate sector needed for every unit of manufacturing output. (This calculation can be made from information in column 3, Table 18-1.) These effects will spread throughout the processing sector.

Tracing the effects of increased demand throughout the input–output model can provide planners with other valuable estimates. It can help them calculate the effects of intermediate sector expansion on changes in import requirements, balance of payments, employment, investment demand, and national income that go beyond the immediate, direct impact. Rather than using the laborious step-by-step approach, planners can use high-speed electronic calculating equipment to compute a matrix showing the total requirements, direct and indirect, per dollar of demand.

THE INPUT–OUTPUT TABLE'S VALIDITY

There are several assumptions underlying input–output analysis that raise questions about its validity. First, the technical coefficients are fixed, which means no substitution between inputs occurs (such as capital for labor, or building and construction for manufacturing inputs). Furthermore, input functions are linear, so that output increases by the same multiple as inputs. Production is subject to constant returns to scale. Moreover, the marginal input coefficient is equal to the average, implying no internal economies or diseconomies of scale. Second, there are no externalities, so that the total effect of carrying out several activities is the sum of the separate effects. Third, there are no joint products. Each good is produced by only one industry, and each industry produces only one commodity. Fourth, there is no technical change, which rules out the possibility of, say, new, improved agricultural methods reducing the industrial and commercial inputs required per output unit.

Although we may question the validity of these assumptions, the errors may not be substantial, especially in a period of 5 years or less. For example, there may not be much substitutability between inputs in the short run while relative factor prices and the level of technology are relatively constant. If input coefficients can be derived at regular and frequent intervals, some of these problems can be overcome.

THE TIME LAPSE IN ESTIMATES

The United States failed to incorporate results of its 1997 input–output survey into the national accounts until 2003. For DCs that revise input–output tables annually, the

timeliness of the United States would receive a low grade. For many LDCs, not only are the input–output tables out of date but also baseline expenditure surveys in both urban and rural areas, industrial structure, transport, construction, and small-scale industry. Some LDCs have estimates that are 15 to 20 years old, whereas others still rely on the original benchmark estimates of the 1960s or early 1970s (Heston 1994:44–45). One of an LDC's highest priorities should be to establish a census and statistics department to gather periodic economic data.

Public Policies Toward the Private Sector

In most LDCs, the private sector, comprised, at least, of most of agriculture, is larger than the public sector. Planners may set targets for production, employment, investment, exports, and imports for the private sector but usually have no binding policies to affect the target. Beyond forecasting, the usefulness of target figures for the private sector depends on the reliability of data, the persuasiveness of the planning process, and policy control over the private sector.

Private sector planning means government trying to get people to do what they would otherwise not do – invest more in equipment or improve their job skills, change jobs, switch from one crop to another, adopt new technologies, and so on.

Some policies for the private sector might include the following:

1. Investigating development potential through scientific and market research, and natural resources surveys
2. Providing adequate infrastructure (water, power, transport, and communication) for public and private agencies
3. Providing the necessary skills through general education and specialized training
4. Improving the legal framework related to land tenure, corporations, commercial transactions, and other economic activities
5. Creating markets, including commodity markets, security exchanges, banks, credit facilities, and insurance companies
6. Seeking out and assisting entrepreneurs
7. Promoting better resource utilization through inducements and controls
8. Promoting private and public saving
9. Reducing monopolies and oligopolies (Lewis 1966:13–24).

Public Expenditures

Planners should ask each government department to submit proposals for expenditures during the plan period. Departments should estimate potential financial (and social) costs and benefits. Each government agency or enterprise should conduct feasibility studies of prospective investment projects in the same detail as would private business. Additionally, government must estimate the effects **current** (noncapital) **expenditures**, including **recurrent expenditures** of continuing programs and of new capital programs on future, recurrent expenditures. Officials estimate that current

costs of government are typically 5 to 10 times capital costs (interest and amortization) yearly.

Because the total cost of the various departmental proposals will probably exceed available funds, planners must set priorities. An individual project should be evaluated in relation to other projects, and not in isolation. Wolfgang F. Stolper (1976:822), a University of Michigan professor serving as Nigeria's chief planner in the 1960s, stresses that planning decisions are "more-or-less," not "either-or." Planners should "rarely condemn a project outright but [should] mainly question its size and timing," and make it depend on other decisions simultaneously taken.

An LDC needs government executives, administrators, and technicians experienced in conceiving projects, starting them, keeping them on schedule, amending them, and evaluating them. Without competent government administration, there is no basis for development planning.

Conclusion

A state planning ideology arose in LDCs as a reaction to nationalist perceptions of slow economic growth under colonial capitalism. Development planning is the government's coordinated policies to achieve national economic goals, such as rapid economic growth. Planning involves surveying the economy, setting goals, devising economic policies, and public spending. It also means implementing and evaluating planning policies. For planning to work, the planning commission must be responsible to political leaders and integrated with government departments and economics ministries. Planners must usually tell political leaders what the tradeoffs are among multiple economic goals.

Deepak Lal argues that development economics is dominated by *dirigiste*, those in favor of government intervention into LDC prices. Critics of Lal respond that although development economists often reject a rigid adherence to Western economic theory, they usually reject price controls, although they put more emphasis on planning than Lal does.

Planning in many LDCs has failed because detailed programs for the public sector have not been worked out, and excessive controls are used in the private sector. At one pole, Soviet "controlling" planning, which took years to develop, was still subject to decentralized management discretion, even before the Gorbachev era.

The plan and market are separate ways of coordinating transactions. Although the market allocates scarce resources efficiently among alternative means, it may not work so well as planning in considering externalities, correcting for market failure, mobilizing saving, and adjusting for monopolies. Thus, planning eliminates certain costs of the market but also increases large-scale diseconomies through diminishing returns to management. The choice for developing countries is usually not between the plan and the market but between various combinations of the two.

Worker-managed socialism helped contribute to Yugoslavia's rapid economic growth from 1959 to 1979, but 1976 reforms, increasing checks and balances and bureaucratizing enterprise decision making, hampered policy implementation, and increased worker dissatisfaction.

Most LDCs have too few resources, skills, and data to benefit from complex macroeconomic planning models. Yet a simple aggregate model may be useful as a first step in drawing up policies and projects.

An input–output table is useful for assessing the effects of different development strategies on exports, imports, the balance of payments, employment, national income, and sectoral investment demand and output.

Most LDCs with a large private sector are limited to an indicative plan that states expectations, aspirations, and intentions but authorizes little public spending.

In most mixed and capitalist LDCs, documents showing how to improve data collection, raise revenue, recruit personnel, and select and implement projects are more important for successful planning than planning models.

TERMS TO REVIEW

- Afro–Asian socialism
- commanding heights
- controlling plan
- current expenditures
- development planning
- *dirigiste* debate
- indicative plan
- input–output table
- instrument variables
- market socialism
- recurrent expenditures
- rolling plan
- soft budget constraint
- target variables

QUESTIONS TO DISCUSS

1. Why did many political leaders of states gaining independence after World War II emphasize state planning?
2. Why might a capitalist LDC want to plan?
3. What is the *dirigiste* debate? Indicate Lal's characterization of the *dirigistes* and the response of Lal's critics.
4. Why have so few LDCs been successful at detailed centralized planning?
5. What problems have mixed economies had in using Soviet-type planning?
6. What problems occur when using widespread controls to influence private investment and production in a mixed or capitalist economy?
7. What are the advantages and disadvantages of the market as an alternative to state planning? What economic systems could combine some of the advantages of both planning and the market? How effective are these systems?
8. Indicate the strengths and weaknesses of market socialism and worker-managed socialism in LDCs. How might a LDC avoid Yugoslavia's economic problems of the 1980s?
9. What are the roles of political leaders and planning professionals in formulating an economic plan?
10. What instruments do planners use to achieve goals?
11. Illustrate how the instrument variables used depend on the plan's duration.
12. Why is the use of complex macroeconomic planning models in LDCs limited?
13. What are the most important parts of the plan in a mixed or capitalist LDC?

14. Is China a good role model for LDCs that wish a market socialist economy?

15. What is an input–output table? Of what value is input–output analysis to a planner? What are some of the weaknesses of the input–output table as a planning tool?

16. What policies can planners undertake to encourage the expansion of private sector production?

17. What advice would you give to the person in charge of development planning in a LDC with a large private sector?

18. Since the fall of communism in 1989–91, is there any role for governmental planning?

GUIDE TO READINGS

World Bank, *World Development Report* (2003i:133–56) discusses strengthening national coordination, governance, and the provision of public goods.

Lewis (1966) has useful suggestions for planning in a mixed and capitalist LDC. Chenery (1989b) on resource allocation in planning, Chenery (1989a) on country experience with planning, and Robinson (1989) on multisector models are survey articles.

Miernyk (1965) offers an elementary explanation of input–output analysis, and Thirwall (1977) and Kenessey (1978) provide concise applications to LDC planning. Heston (1994) critiques input–output data and national accounts in LDCs.

Sundrum (1987) looks at India's growth and planning; Kornai (1987) focuses on Hungary's socialist market economy; Schrenk (1987) examines the former Yugoslavia's worker-managed socialism; and Gregory and Stuart (2001) analyze Soviet economic planning. Lange and Taylor (1965), Hôrvat (1975), Vanek (1975), and Nove (1983) discuss market socialism.

Stewart (1985) responds to Lal's (1983) critique of *dirigisme*. The contributors to Boettke (1994) present their views of *The Collapse of Development Planning*.

Coase (1937:368–405), Williamson (1981:137–168; 1967:123–139), and Williamson and Winter (1991), although focusing on the firm, have implications for the relative costs of monitoring and other transactions under the plan and the market.

Ayittey (2005) provides the most detailed documentation of post-independence misdirection, administrative ineptitude, and rural neglect by Africa's political elites, resulting in widespread reduced well-being over the last 45 years. For him, Africa's failure not only results from wars and AIDS but also the failure of agriculture, indicative of the contempt of predatory rulers for the peasants, that results from an emphasis on mechanization (not donkeys, horses, wooden carts, and bush paths), the exploitation of peasants through price disincentives, and widespread efforts at statism (socialism). Ayittey would rely less on modernizing elites and more on traditional chiefs whose rule he considers closer to that of bottom-up development.

Amsden (1989:80) indicates that the South Korean state instigated "every major shift in industrial diversification" in the 1960s and 1970s, including import substitution in cement, fertilizers, oil refining, and synthetic fibers. Over time, joint public-private ventures became more common.

19 Stabilization, Adjustment, Reform, and Privatization

Chapter 16 mentioned problems of economic **adjustment**, including structural or sectoral adjustment, macroeconomic stabilization, and economic liberalization and reform. Adjustment often requires developing and transitional countries to borrow from and meet conditions set by the World Bank and IMF as a last resort. Chapter 5 examined the policies that form the Washington consensus of the World Bank, IMF, and United States government.

In this chapter, we discuss adjustment and stabilization programs of third-world countries of Asia, Africa, and Latin America, with particular emphasis on World Bank and IMF adjustment programs. After that, we analyze public enterprises, looking at public enterprises and the role of public goods, the importance of government sector, the concept of the state-owned enterprises, the size of the state-owned sector, arguments for public enterprise, the performance of private and public enterprises, the determinants of public enterprise performance, privatization, some pitfalls of privatization, and public enterprises and multinational corporations. The third section of this chapter examines adjustment, stabilization, and liberalization in the economies of transition, especially Russia, China, and Poland. A final section looks at lessons third-world countries can learn from the Russian, Polish, and Chinese transitions to the market.

The World Bank

In 1975, the World Bank established an interest subsidy account (a "third window") for discount loans for poorest countries facing oil price increases (Stanford 1988:787–796). In 1979 to 1983, structural adjustment loans (SALs) comprised only 9 percent of Bank lending and had little impact on the most highly indebted countries. By the late 1990s, however, 85 to 90 percent of lending was SALs, with many focused on indebted countries undertaking structural reforms to eliminate long-term debt problems, although ostensibly to reduce poverty. Although the Bank set up a Special Program of Assistance (SPA) in 1983 to ease the debt crisis, by the late 1980s critics, including some U.S. economists and members of Congress, voiced dissatisfaction with the Bank's minimal financial contribution to debt relief arrangements. The leadership of the Bank, although pointing out that 45 percent of its loans were to heavily indebted countries, argued, however, that the Bank's primary role was development lending to poor countries, not financial guarantees for commercial

bank loans to middle-income countries (Wall Street Journal 1988:19; Mossberg 1988:1, 24).

After 1987, the World Bank group (including its soft-loan window, the International Development Association or IDA), the IMF (Structural Adjustment, later Poverty Reduction and Growth Facility), and bilateral donors concentrated the SPA on low-income debt-distressed sub-Saharan Africa. The SPA increased co-financing of adjustment with other donors, and provided greater debt relief, including cancellation of debt from aid and concessional rescheduling for commercial debt from creditor governments. Also, the Bank created a Debt Reduction Facility for the poorest debt-distressed countries in 1989 and joined the IMF in 1996 to set up the initiative for highly indebted poor countries (HIPCs) (Chapter 16).

International Monetary Fund

A **balance of payments equilibrium** refers to an international balance on the goods and services balance over the business cycle, with no undue inflation, unemployment, tariffs, and exchange controls. Countries with chronic balance-of-payments deficits eventually need to borrow abroad, often from the IMF as the lender of last resort. In practice, a member borrowing from the IMF, in excess of the reserve tranche, agrees to certain performance criteria, with emphasis on a long-run international balance and price stability. IMF standby arrangements assure members of the ability to borrow foreign exchange during a specified period up to a specified amount if they abide by the arrangement's terms. IMF **conditionality**, a quid pro quo for borrowing, includes the borrower's adopting adjustment policies to attain a viable payments position – a necessity for preserving the revolving nature of IMF resources. These policies may require that the government reduce budget deficits through increasing tax revenues and cutting back social spending, limiting credit creation, achieving market-clearing prices, liberalizing trade, devaluing currency, eliminating price controls, or restraining public-sector employment and wage rates. The Fund monitors domestic credit, the exchange rate, debt targets, and other policy instruments closely for effectiveness. Even though the quantitative significance of IMF loans for LDC external deficits has been small, the seal of approval of the IMF is required before the World Bank, regional development banks, bilateral and multilateral lenders, and commercial banks provide funds.

Policies generally shift internal relative prices from nontradable to tradable goods, promoting exports and "efficient" import substitution. Although policies generally move purchasing power from urban to rural areas, consumers to investors, and labor to capital, subgroups within these categories may be affected very differently; moreover, government functionaries who oversee and administer programs still possess discretion in distributing rewards and sanctions. Conditions attached to IMF credits sometimes provoke member discontent, as in Nigeria's anti-structural adjustment "riots" in mid-1989.

The DCs' collective vote, based on members quotas, is 68 percent. And LDCs often support DCs in laying down conditions for borrowers so as not to jeopardize

the IMF's financial base. Still, many African and Latin American borrowers say that IMF conditionality is excessively intrusive. Thus, for example, in 1988, in exchange for IMF lending to finance a shortfall in export earnings from cocoa, coffee, palm products, and peanuts, Togo relinquished much policy discretion, agreeing to reduce its fiscal deficit, to restrain current expenditures, to select investment projects more rigorously, to private some public enterprise, and to liberalize trade. Yet the IMF must be satisfied that a borrower can repay a loan. Lacking adjustment by surplus nations, there may be few alternatives to monetary and fiscal restrictions or domestic-currency devaluation for eliminating a chronic balance-of-payments deficit (Nafziger 1993:101–102).

Critics from LDCs, supported by the Brandt Commission (see Chapter 15), charged that the IMF presumes that international payments problems can be solved only by reducing social programs, cutting subsidies, depreciating currency, and restructuring similar to Togo's 1988 program. According to the Brandt report, the IMF's insistence on drastic measures in short time periods imposes unnecessary burdens on low-income countries that not only reduce basic-needs attainment but also occasionally lead to "IMF riots" and the downfall of governments. These critics prefer that the IMF concentrate on results rather than means (Independent Commission on International Development Issues 1980:215–216; Mills 1989:10).

Despite a decline in funds from the 1970s to the 1980s, the IMF maintained or even increased its leverage for enforcing conditions on borrowers in the 1980s, for during the 1980s and early 1990s, World Bank loans consolidated conditions set by the IMF. The IMF became gatekeeper and watchdog for the international financial system, as IMF standby approval served as a necessary condition for loans or aid by others. Moreover, the World Bank led donor coordination between DCs and the Bank and Fund, increasing their external leverage. Many low-income recipients, especially from Africa, lacked personnel, abdicating responsibility for coordinating external aid, and increasing the influence of the Bank, IMF, and other donors.[1]

Internal and External Balance

A country needs to adjust whenever it fails to attain balance of payments and domestic macroeconomic equilibria, that is, equilibra referring to both external and internal balances. The following is a simplified explanation of how to attain both external and internal balance.

[1] Loxley (1986:96–103); Economic Commission for Africa (1985); Weeks (1989:57).

An example of skillfully playing the World Bank against the IMF for public relations gains involved President Ibrahim Babangida, who from 1985 to 1986 conducted a yearlong dialogue with the Nigerian public, resulting in a rejection of IMF terms for borrowing. The Babangida military government secured standby approval from the IMF but rejected its conditions, while agreeing to impose similar terms "on its own" approved by the Bank. In October 1986, the Bank, with Western commercial and central support, delivered $1,020 million in quickly disbursed loans and $4,280 million in three-year project loans (Nafziger 1993:130).

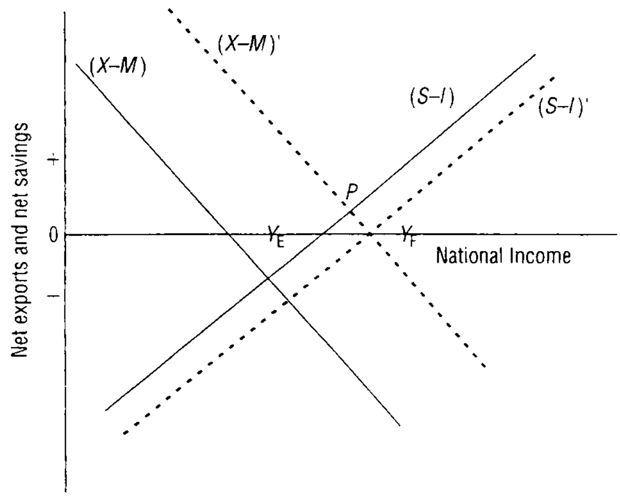


FIGURE 19-1. Internal and External Balances.

Remember national-income equation 15-5:

$$S = I + (X - M) \tag{19-1}$$

where S = Savings, I = domestic investment, X = exports of goods and services, and M = imports of goods and services.

If we subtract I from both sides of the equation,

$$S - I = X - M \tag{19-2}$$

or savings minus investment equals the international balance on goods and services.

Internal balance refers to full employment (and price stability); **external balance** refers to exports equal to imports. Figure 19-1, a simple model of Keynesian macroeconomic income determination, shows the relationships between income and expenditures and internal and external balances. Figure 19-1's upward-sloping line shows net domestic savings, Savings (S) minus Investment (I). The downward-sloping line shows net exports, Exports (X) minus Imports (M). (Savings and imports depend on income; investment is dependent on the interest rate and the expected rate of return; and exports are dependent on foreign income.) The intersection of $S - I$ with $X - M$ indicates net savings and net exports on the vertical axis, and on the horizontal axis, an equilibrium income (Y_E) short of the full-employment level of income (Y_F).

A simple algebraic manipulation changes our equation to the macroeconomic equilibrium where

$$S + M \text{ (leakages)} = I + X \text{ (injections)} \tag{19-3}$$

that is, aggregate demand equals aggregate supply, or expenditures equal income.

Countries facing a persistent external deficit can (1) borrow overseas without changing economic policies (feasible if the deficit is temporary), (2) increase trade restrictions and exchange controls, which reduce efficiency and may violate international rules but may be tolerated in LDCs, or (3) undertake contractionary monetary

and fiscal policies or **expenditure-reducing policies** (a shift of the $[S - I]$ curve upward and to the left), which sacrifice internal goals of employment and growth for external balance. Remedy (3), which critics call "leeching" after the 19th-century medical practice of using bloodsuckers to extract "unhealthy blood" from the sick, works with sufficient regularity to be considered the creditor community's least-risk choice. An economy, if depressed sufficiently, will at some point reduce its balance-of-payments deficit. And indeed, World Bank evidence for 30 countries, 1980–85, indicates that LDCs undergoing adjustment gave up domestic employment and spending objectives to cut their payments deficit (Weeks 1989:61; World Bank 1988a:1–3). If the deficit is chronic, additional borrowing without policy change only postpones the need to adjust. When the World Bank or IMF requires improved external balance in the short run (two years or so), the agency may conditions its loan on (4) **expenditure switching**, that is, switching spending from foreign to domestic sources, through devaluing local currencies. For long-term adjustment, the Bank or Fund prescribes supply-side adjustments through infrastructure, market development, institutional changes, price (including interest rate) reforms, reduced trade and payments controls, and technology inducement to improve efficiency and capacity to facilitate growth with external balance, but these changes take too much time for short-run adjustment.

Consider the intersection of $(X - M)$ and $(S - I)$ in Figure 19-1, corresponding to an external deficit with unemployment. To attain both external or internal balances, the country combines expenditure-switching (depreciating domestic currency) and expenditure-increasing (expansionary monetary and fiscal) policies.

Depreciating the currency – for example, increasing the shilling's (domestic currency) price of the dollar from Sh15 = \$1 to Sh20 = \$1 – results in the country's export prices falling in dollars. If the sums of the price elasticities of demand for exports plus imports are at least roughly equal to one, the country's goods and services balance will improve. Thus, net exports $(X - M)$ increase (say) to $(X - M)'$, an international surplus. At the same time, the net export and net savings schedules intersect at a point further to the right (P), corresponding to higher income and employment, but still at less than full employment.

Increasing demand through reduced interest rates or a rising government budget deficit (higher government spending or lower tax rates), an expenditure-increasing policy, lowers net savings $(S - I)$ to $(S - I)'$. The new net savings and net export schedules intersect at a full employment level of income, Y_F, with a zero balance of goods and services balance, attaining both internal and external balances.

Critique of the World Bank and IMF Adjustment Programs

Many LDC critics feel the IMF focuses only on demand while ignoring productive capacity and long-term structural change. These critics argue that the preceding model of two balances shows the cost of using austerity programs – contractionary monetary and fiscal policies – prescribed by the IMF. Additionally, these governments object to the Fund's market ideology and neglect of external determinants of stagnation and instability. Moreover, IMF austerity curtails programs to reduce poverty

and stimulate long-run development. Yet although the IMF has perceived its role as providing international monetary stability and liquidity, not development, the concessional component of its structural adjustment loans, which began in 1986, emphasized development more. However, in their Declaration of Uruguay, October 27–29, 1988, the seven largest Latin American countries contended that "the conditionality of adjustment programs, sector lending, and restructuring agreements often entails measures that are inadequate and contradictory, making the economic policies more difficult in an extremely harsh economic climate" (*IMF Survey*, November 14, 1988, p. 354).

Beginning in the 1950s, **structural economists** from the U.N. Economic Commission for Latin America (ECLA) criticized IMF orthodox premises that external disequilibrium was short-term, generated by excess demand, requiring primarily contractionary monetary and fiscal policies and currency devaluation. ECLA economists emphasized the necessity for long-run institutional and structural economic change – accelerating the growth of export earnings, improving the external terms of trade, increasing the supply elasticity of food output through land reform, reducing income inequality, and expanding the industrial sector and antimonopoly measures before shorter-run financial and exchange-rate policies would be effective.

The newer structuralist critique of the 1980s and 1990s also stresses the long-run transformation of the economy. Critics viewed the Latin American payments crisis as resulting from a long-term structural crisis in export supply and wanted IMF programs to stress these long-run changes and avoid austerity programs (Sutton 1984:16–67; Sharpley 1984:164–216; de Oliveira Campos 1964:129–137). (See also the prescription by Latin American structural economists for structural inflation, discussed in Chapter 14.)

To avoid heavy social costs, the UNICEF urges *adjustment with a human face*, including IMF and World Bank adjustment programs emphasizing the restoration of LDC growth while protecting the most vulnerable groups, as well as growth-oriented adjustment, such as expansionist monetary and fiscal policies and World Bank/IMF loans sufficient to avoid a depressed economy. According to UNICEF, the empowerment and participation of vulnerable groups – the landless, the urban poor, and women – are essential to improve policies and protect these groups and children, especially the undernourished (Cornia, Jolly, and Stewart 1987b:131–146; Stewart 1987:147–164; Stewart 1990).

In its criticisms of World Bank and IMF adjustment programs, the U.N. Economic Commission for Africa (ECA) (1989a:24) offered an African Alternative Framework to Structural Adjustment Programs for Socio-Economic Recovery and Transformation (AAF-SAP), in 1989. Like the structuralists, ECA rejected the orthodox prescription for Africa's poorly structured economies. Like UNICEF, ECA complained that

> the major transitional adverse social consequences of structural adjustment programs are: declining per capita income and real wages, rising unemployment and underemployment; deterioration in the level of social services as a result

> of cuts on social public expenditures; falling educational and training standards; rising malnutrition and health problems; and rising poverty levels and income inequalities.... Many African governments have had to effect substantial cuts in their public social expenditures such as education, health and other social services in order to release resources for debt service and reduce their budget deficits. From the point of view of long-term development, the reduction in public expenditures on education ... necessitated by stabilization and structural investment programs, has meant a reversal of the process, initiated in the early 1960s, of heavy investment in human resources development.... Today, per capita expenditure on education in Africa is not only the lowest in the world but is also declining.... All indications are to the effect that structural adjustment programs are not achieving their objectives.

Indeed, ECA Executive Secretary Adebayo Adedeji (1989:21–25) argued that structural adjustment "has produced little enduring poverty alleviation and certain [of its] policies have worked against the poor."

The ECA objected to the World Bank's and IMF's adjustment programs emphasizing deregulating prices, devaluing domestic currency, liberalizing trade and payments, promoting domestic savings, restricting money supply, reducing government spending, and privatizing production. These programs, ECA argued, fail in economies like those of Africa with a fragile and rigid production structure not responsive to market forces.

The ECA (1989:–iii, 26–46, 49–53) called for a holistic alternative to failed Bank and IMF structural adjustment programs, with an emphasis on increased growth and long-run capacity to adjust. Yet the ECA's list of policy instruments, although ambitious, was short on specifics. But the ECA emphasized adjustment programs as primarily the responsibility of Africans, who may set up programs in partnership with outside agencies, rather than having these agencies do the formulating, designing, implementing, and monitoring.

A Political Economy of Stabilization and Adjustment

Economic stagnation, frequently accompanied by chronic international balance on goods and services deficits and growing external debts, intensifies the need for economic adjustment and stabilization. A persistent external disequilibrium has costs whether countries adjust or not. But nonadjustment has the greater cost; the longer the disequilibrium, the greater is the social damage and the more painful the adjustment. Countries such as Yugoslavia and Algeria, which failed to adjust, were more vulnerable to poverty, displacement, and even war. Woodward (1995) blames the Yugoslav conflict on the disintegration of government authority and breakdown of political and civil order from the inability to adjust to a market economy and democracy. Yugoslavia's rapid growth during the 1960s and 1970s, fueled by foreign borrowing, was reversed by more than a decade of an external debt crisis amid declining terms of trade and global credit tightening, forcing austerity and declining living standards. In Algeria, the lack of adjustment, stabilization, and growth in the

1980s strengthened Islamist party opposition, which recruited substantially among discontented unemployed young men for terrorism (Morrisson 2000).

More than a decade of slow growth, rising borrowing costs, reduced concessional aid, a mounting debt crisis, and the increased economic liberalism of donors, the IMF, and World Bank compelled LDC elites to change their strategies during the 1980s and 1990s. Widespread economic liberalization and adjustment provided chances for challenging existing elites, threatening their positions, and contributing to increased opportunistic rent-seeking and overt repression. And cuts in spending reduced the funds to distribute to clients, and required greater military and police support to remain in power.

Political elites in Africa and other LDCs faced increasing pressure from slow growth and international debt crises, as well as external pressure by donors and the Bretton Woods' institutions to liberalize and privatize. Pressures to cut the size of the state, amid shrinking resources, put substantial constraints on the ability of elites, particularly in Africa, to reward and sanction political actors, contributing to greater political instability. These pressures and constraints make it more difficult to undertake coherent programs for macroeconomic stabilization and structural adjustment and to attract more foreign direct investment and aid.

Although stagnation, a current-account deficit, and inflation are components of a macroeconomic disequilibrium, IMF stabilization programs in LDCs focus on the last two components, while neglecting stagnation. In Chapter 14, we mentioned the study by Bruno and Easterly (1998) that shows no negative correlation between inflation and economic growth for inflation rates under 40 percent annually. Amid South Korea's 1997 crisis, the IMF told "the Korean Central Bank . . . not only to be more independent but to focus exclusively on inflation, although Korea had not had a problem with inflation, and there was no reason to believe that mismanaged monetary policy had anything to do with the crisis," according to Joseph Stiglitz (2002b:45). When he asked why, Stiglitz was shocked by the IMF team's answer: "we always insist that countries have an independent central bank focusing on inflation." Cramer and Weeks (2002:43–61) argue that the focus of IMF orthodox programs on inflation (often draconian monetary measures) is usually unnecessary, and that reviving growth should generally take precedence over monetary and fiscal orthodoxy.

Indeed, as long as the IMF continues its orthodox emphasis, one essential reform is to strengthen independent financial power within the world economy – independent of the IMF Good Housekeeping seal for stabilization programs required before the World Bank, OECD governments, or commercial banks will provide loans, debt writeoffs and writedowns, and concessional aid. For Cramer and Weeks, the "evidence [is] that adjustment did not stimulate recovery in [low-income countries] LICs." The World Bank (1992b), in its overview of adjustment, identified growth as the "long-term objective" and discussed "moving from adjustment to growth." Indeed, for the Bank, the aim of adjustment loans "is to support programs of policy and institutional change to modify the structure of an economy so that it can maintain its growth rates and the viability of its balance of payments" (ibid.).

The poorest countries, primarily in sub-Saharan Africa, that are most vulnerable to political instability, would benefit from the expansion of funding from Japan, the European Union, or its member states, or from banks or regional development banks independent of two sides (the IMF and U.S. government) of the triangle of the Washington institutions' lending and policy cartel.[2] Official donors and lenders, with their emphasis on democratization, political stability, and socioeconomic development and their provision of project and humanitarian aid, have a broader agenda than the IMF's priority on the balance of payments (or even the World Bank on development and adjustment). Thus, donors should not condition funds on the recipient country's stabilization agreement with the IMF. Bilateral agencies (and the EU) need to be more active in designing and monitoring the programs they co-finance with the IMF and World Bank. In addition, the monitoring by bilaterals should be separate, or at least supplementary, to that of the Bank/Fund (Aguilar 1997).[3]

Empirical Evidence

IMF and World Bank adjustment programs seek to restore viability to the balance of payments and maintain it in an environment of price stability and sustainable rates of growth. How successful have these programs been?

Adjustment programs resulting in switching expenditures from foreign to domestic sources (usually through devaluation) are supposed to improve the external balance while increasing growth. A World Bank (1988a) study of 54 LDCs receiving adjustment lending during 1980–87 indicated that more than half of the recipients improved their current account; however, their average growth was slower than before despite being significantly higher in the short run (though no more sustained) than nonrecipients'. Also recipients' export growth and import decline were faster than others' were, although some recipients' import reduction resulted from lack of foreign exchange. Moreover, although recipients' social indicators were generally higher than others' were, recipients' calorie intake stagnated or declined during the 1980s, a trend worse than other LDCs experienced.

The World Bank also measured the net change in performance of countries receiving adjustment loans (ALs) in the three years before to the three years after receiving ALs and compared this change to countries not receiving these loans. Among low-income countries generally, current-account balances and debt-service ratios improved faster, growth was slower, and inflation faster among recipients than the comparison groups. Middle-income countries receiving ALs, however, had faster growth (though faster inflation) than the comparators. For both low-income and middle-income countries, the burden of adjustment fell heavily on investment.

[2] The third side of the triangle is the World Bank (Nafziger 1993).

[3] Ehrenpreis (1997) indicates that the Swedish International Development Cooperation Agency or Sida "is planning to integrate [program-aid] support more closely with the over-all country strategy planning of development cooperation." Sida is to define criteria related to the policy reform process without, however, setting the same conditions as the World Bank or IMF.

IMF studies suggest that demand-restraining monetary and fiscal policies reduce growth until the long lags associated with exchange-rate, interest-rate, resource-allocation (such as increasing agricultural producer prices), and other market reforms stimulate growth. The 1987 real exchange rate of countries undergoing Bank adjustments depreciated on average by about 40 percent from their 1965–81 levels. Changes in exchange rates and interest rates improved resource allocation and restructured the economy toward exportables and import substitutes, stimulating investment and growth (World Bank 1988a:18–36).

Simon Commander's study finds commercial (especially export and import-replacement) farmers, their wage labor, and traders benefiting from exchange-rate and other adjustments. Public-sector employees, domestic-goods producers, and informal-sector workers tend to be hurt by adjustment (Commander 1989:239).

UNCTAD (1991:8) maintained that the economic performance of the twelve least-developed countries with consecutive structural adjustment programs throughout the 1980s did not differ significantly from least-developed countries as a whole. Furthermore, Riccardo Faini, Jaime de Melo, Abdelhak Senhadji, and Julie Stanton's (1991:957–967) study of 93 LDCs undertaking adjustment before 1986, controlling for initial conditions and external factors, found no evidence of a statistically better (or worse) performance for World Bank/IMF loan recipient countries.

UNICEF (1989:21) contends that

> the common aim of these [World Bank/IMF economic adjustment] measures is to improve the balance of payments, repay debts and reduce inflation. Important national objectives – such as expanding and protecting employment, ensuring a minimum income for households and providing basic public services – have become secondary. Ironically, the result has often been an aggravation of the economic crisis and a parallel human crisis as unemployment rises, incomes of the most vulnerable groups fall, import-dependent industries cut production, public services are curtailed, and public discontent and political instability grow.

Another UNICEF study shows that from 1980 to 1985, during a period of negative growth resulting from external debt limiting social spending, child welfare deteriorated in most of sub-Saharan Africa; that is, rates of infant mortality, child death, child malnutrition, primary school dropout, illiteracy, and nonimmunization all increased (Cornia 1987b:11–47). The fall in birth weight occurring throughout the sub-Sahara also indicated declining welfare. Moreover, an ECA paper indicates that killer diseases such as yaws and yellow fever, virtually eliminated by the end of the 1950s, reemerged in the 1980s (Green 1990:3).

Frances Stewart (1990) uses World Bank data to ask whether Bank/IMF policies restore external equilibrium and internal balance as well as long-term development. She finds no difference in the fall in GNP per capita, 1980–87, between sub-Saharan countries undergoing strong Bank/Fund adjustment programs and those with weak programs. Additionally, during the period, real domestic investment and export earnings fell, the fiscal deficit remained large, debt continued to accumulate, and the

current account did not improve, despite falling imports, in sub-Saharan countries undertaking adjustment. When Stewart deplores that "after undergoing tough programs, many countries found themselves with reduced real income, increased poverty, deteriorating social conditions, reduced growth potential and often with no significant improvements in their external accounts," she was describing the situation in Nigeria (before the 1989–91 oil price recovery), Zambia, and Tanzania in the 1980s. She concludes that, irrespective of the cause, Bank/Fund policies did not meet their short-run objectives and were undermining growth potential, 1980–87.

Paul Mosley, Jane Harrigan, and John Toye (1991:Vol. 1) and FAO (1991c:15) criticize methods for evaluating World Bank/IMF adjustment programs. Comparing performance before and after adjustment, although useful and informative, has a strong static bias, FAO pointed out. The questions to ask are: How would the economy have performed without the policy reforms? How does this performance compare with the actual performance? Moreover contrasting adjusting to non-adjusting countries ignores the conditions when adjustment policies were initially implemented, the different economic and political characteristics of the countries and the different policies.

Mosley, Harrigan, and Toye (1991:Vol. 1, 181–207) reject comparing LDC World Bank recipients with LDC nonrecipients; the results will be misleading because recipients are not representative of LDCs generally. For example, perhaps only the most desperate countries apply for Bank adjustment loans (ALs), or the Bank may eliminate from consideration economies that are too weak to undergo programs. For this reason, Mosley et al.'s comparisons were based on selecting recipient countries with similar characteristics to 1980–86 recipients. To illustrate, Côte d'Ivoire was paired with Cameroon, Kenya with Tanzania, Pakistan with Egypt, and Thailand with Malaysia. Another problem, the linkage of Bank ALs to other finance programs, such as an IMF stabilization agreement, was disentangled by regression analysis, which holds other influences constant.

Although both adjustment loan recipient and control groups grew more slowly in the early 1980s than in the late 1970s, the AL group had a significantly worse growth experience than the control group. Among the AL-assisted countries in which compliance with policy conditionality was high, growth was even more unfavorable compared to the relevant control group. Although the standard deviations were large, the AL countries had a greater fall in investment rates (from cutting the government development budget, from the multiplier effect in lowering aggregate domestic demand, and from the lesser constraints on spending on consumer import goods compared to project aid), but a more substantial improvement in current-account balance, a lesser decline in real export growth, and greater reduction in real import growth than non-AL countries (with all differences here and subsequently significant at the 5 percent level) (Mosley, Harrigan, and Toye 1991:Vol. 1: 181–207).

Mosley, Harrigan, and Toye's (ibid.) regression-based results, which examine growth in all adjustment-loan countries, in sub-Saharan African countries, and in middle-income countries (with time lags varying from zero to two years) as a function

of financial flows, compliance with Bank conditionality, and extraneous variables (weather and terms of trade), are consistent with their paired comparisons. Bank financial flows are negatively correlated but compliance with Bank conditions positively correlated with growth, so overall Bank program effects are nil (or perhaps negative, because the negative money effect is immediate, whereas the positive compliance effect, from price-based and other reforms, is lagged at least a year and uncertain to materialize). The authors explain the surprising negative effects of money flows by showing that they reduce pressures for policy reform and appreciate the real dollar price of domestic currency (as in "Dutch disease," discussed in Chapter 13). The same study found that Bank financial flows have a strong negative effect and compliance with Bank reform a strong positive impact on export growth in the immediate period, but the relationships are reversed for a longer period (one or two years); the net effect of Bank programs on export growth is negative in the same and next years but positive two years hence. IMF standby credit, although positively related to middle-income countries' growth, is negatively correlated with sub-Saharan growth. Both weather and terms of trade improvement have a positive effect on growth (Mosley, Harrigan, and Toye 1991:Vol. 1, 208–232.

FAO (1991:115–149), which examines the critical period after 1981–83, divided LDCs into healthy adjusters, who reduced internal and external deficits without jeopardizing growth, so savings and export earnings rose; unhealthy adjusters, who decreased the external deficit by restricting imports and investment, thus threatening the long-term capacity to expand; and deteriorators, whose internal and external deficits increased. Deteriorators appreciated their currencies in real terms, unhealthy adjusters' currencies did not change, and healthy ones depreciated currencies, resulting in the most success in improving their trade balances. Income distribution shifts (for example, from urban to rural residents) following devaluation sometimes contributed to a recession, at least in the short run.

While savings rates declined from the 1970s to the 1980s, they recovered substantially after 1981–83 in the healthy adjusters, while falling uninterruptedly among unhealthy adjusters and deteriorators. LDC import and investment rates declined during the depression of 1981–83, afterward recovering unevenly and contributing to growth in the healthily adjusting Latin American countries but not recovering in any major African country grouping (FAO 1991:115–149).

The assessment of World Bank/IMF adjustment programs is mixed, with Bank studies indicating their effectiveness but several independent empirical studies failing to show the success of these programs. These studies, taken as a whole, show that the record of growth, external balance, and social indicators of countries with strong Bank/IMF adjustment programs was no better than those with weak or no adjustment programs. Moreover, Bank/Fund programs reduce investment and social spending. Yet, the World Bank and IMF could argue that these countries would have done worse with programs organized by national planners. Turning this statement on its head, many LDC leaders see no evidence that national planners do any worse than the Bank and Fund, but at least national adjustment plans provide indigenous people with experience and learning benefits. In the 1990s, the Bank and

Fund have put more emphasis on increasing recipient capability to plan adjustment programs. Future research needs to assess this new emphasis by the World Bank and IMF.

The Sequence of Trade, Exchange Rate, and Capital Market Reform

Although price controls, exchange-rate misalignments, and government budget deficits contributed to the debt crisis, the immediate freeing of markets and contraction of spending may not resolve the disequilibrium. Many adjusting countries feel that the World Bank and IMF focus only on demand reduction. After 1981, the IMF emphasized shock treatment for demand restraint in low-income Africa, rarely providing financing for external adjustments, and cut programs from three years to one year. One year is not enough for adjustment. Demand restrictions, inflation deceleration, and currency depreciation do not switch expenditures to exports and import substitutes or expand primary production quickly enough to have the desired effect on prices and trade balance. Studies indicate that, even in DCs (for example, the United States, 1985–88), the current-account improvement from devaluation usually takes about two to five years, usually beginning with a worsening trade balance in the first year. The time for adjustment is due to the lags between changes in relative international prices (from exchange-rate changes) and responses in quantities traded. Lags involve time for recognition, decision (assessing the change), delivery, replacement (waiting to use up inventories), and production (Grubel 1981:349–388).

Trade liberalization in the midst of stabilization, even if politically possible, may perpetuate a government budget crisis. As Mosley, Harrigan, and Toye argue, given labor and resource immobility, early liberalization of external trade and supply-side stimulation in "one glorious burst" result in rising unemployment, inflation, and capital flight and the subsequent undermining of adjustment programs. This trade-reform failure is consistent with the theory of the second best. An application of this theory suggests that trade liberalization while other prices are still controlled may be worse than having all prices distorted (see Chapter 17).

Mosley, Harrigan, and Toye (1991:Vol. 1) and FAO (1991:181–207) suggest the following trade, exchange, and capital market liberalization sequence: (1) liberalizing imports of critical capital and other inputs, (2) devaluing domestic currency to a competitive level, while simultaneously restraining monetary and fiscal expansion to curb inflation and convert a nominal devaluation to a real devaluation (McKinnon 1993:5), (3) promoting exports through liberalizing commodity markets, subsidies, and other schemes, (4) allocating foreign exchange for maintaining and repairing infrastructure for production increases, (5) removing controls on internal interest rates to achieve positive real rates, and expanding loans agencies to include farmers and small businesspeople, (6) reducing public sector deficits to eliminate reliance on foreign loans at banking standards without decreasing real development spending, and reforming agricultural marketing to spur farmers to sell their

surplus, (7) liberalizing other imports, rationalizing the tariff structure,[4] and removing price controls and subsidies to the private sector, and (8) abandoning external capital-account controls.

The eighth step recognizes the necessity of reforming internal capital markets before liberalizing international capital movements. Critics contend that neither World Bank nor IMF recommendations nor implementation bear much relationship to a sequence of reforms. Frequently, the World Bank asked for liberalizing trade early without limiting the imports that it should be applied to. For example, the foreign-exchange requirements associated with trade liberalization, the major component of the Bank's first structural adjustment loan in Kenya in 1980, became unsustainable, so liberalization had to be abandoned. Additionally, import liberalization preceded agricultural export expansion based on commodity market liberalization, price decontrol, and export promotional schemes. By contrast, Ghana, under a World Bank sectoral adjustment loan beginning in 1983, allocated foreign exchange through an auction, and the goods eligible for entry to the auction expanded over time in line with the increased supply of foreign currency.

Moreover, recipients should implement IMF demand-reducing programs before the World Bank's supply-increasing ones. If countries begin with supply reforms that take a longer time, the lack of demand restraint will contribute to inflation and an unmanageable current-account deficit. Still, adjustment loan recipients also need to avoid excessive initial demand restraint that depresses the economy; simultaneous devaluation, as in stage 2, could avoid this contractionary effect (Mosley, Harrigan, and Toye 1991:Vol 1, 110–16; FAO 1991:101–03).

Public Enterprises and the Role of Public Goods

Speaking broadly, a public enterprise is a government entity that produces or supplies goods and services for the public. Even in a capitalist country like the United States, government produces **public goods** that the market fails to produce. Public goods such as national defense and lighthouses are indivisible, involving large units that cannot be sold to individual buyers. Additionally, those who do not pay for the product cannot be excluded from its benefits. By contrast, *quasi-public goods*, such as education and sewage disposal, although capable of being sold to individual buyers, entail substantial positive spillovers and would thus be underproduced by the market. Government agencies in the United States produce part or all of the following public or quasi-public goods: national defense, flood control, preventive medicine, lighthouses, parks, education, libraries, sewage disposal, postal service, water supplies, environmental protection, gas, electricity, and police and fire protection (Case and

[4] Because they control currency convertibility, state trading agencies in socialist economies could simply refuse to authorize imports. Thus, McKinnon (1993:7–9, 93) stresses the importance of LDCs, especially those in transition from a state-controlled economy, converting implicit quota restrictions into explicit tariffs. "Once formally codified, the highest tariffs . . . can then be reduced toward zero over a preannounced five- to ten-year adjustment period" (ibid., p. 9).

Fair 1996:313–315, 417–423; McConnell 1987:93–94). In most countries, however, the government sector supplies more than public and quasi-public goods.

Arguments for Public Enterprises

Social profitability in excess of financial profitability provides major reasons for public enterprise. Public investment can create external economies, improve integration among sectors, produce social goods for low-income earners, and raise the capital essential for overcoming indivisibilities. Frequently, officials indicate that creating new jobs is the rationale for establishing state enterprises. Moreover, public firms can rescue bankrupt private firms in key sectors, or state initiative can substitute for private entrepreneurship when risk is high, capital markets are poor, or information is sparse. Finally, governments have noneconomic reasons for creating SOEs, including control of key sectors, wresting control from foreign owners or minority ethnic communities, responding to foreign donor pressure, or to serve other social and political goals, such as avoiding concentration of economic power among private oligopolists.

Definition of State-Owned Enterprises

State-owned enterprises (SOEs), called **public enterprises**, are common in transitional China, and market economies such as Taiwan, South Korea, and Brazil. Most SOEs are in large-scale manufacturing, public utilities (electricity, gas, and water), plantation agriculture, mining, finance, transport, and communication.

For this chapter's discussion, a state enterprise consists of an enterprise (1) where government is the principal (not necessarily majority) owner or where the state can appoint or remove the chief executive officer (president or managing director) and (2) that produces or sells goods or services to the public or other enterprises, where revenues are to bear some relationship to cost. Public enterprises that do not maximize profitability may still qualify if they pursue profit subject to some limitation assigned by the state (Gillis, Perkins, Roemer, and Snodgrass 1987:569). This narrow definition of state-owned enterprises differentiates public *enterprises* producing steel, palm products, electricity, and telephone, telegraph, banking, and bus services from public *agencies* that run schools, libraries, agricultural extension services, and police departments. The United States, with SOEs that include municipally owned public utilities, intracity transport, the post office, and the Tennessee Valley Authority, has fewer public enterprises than most DCs and LDCs.

Importance of the State-Owned Sector

The contribution of state-owned enterprises to GDP in developing countries increased from 7 percent in 1970 to 11 percent in 1978–91. The highest share was in sub-Saharan Africa with 14 percent (20 percent of formal-sector employment), followed by Latin America with 10 percent, and 8 percent in Asia (World Bank 1983i:49–50; Cook and Kirkpatrick 2003:213).

Data on the size of government sector are incomplete and incomparable. In 1980, 13 percent of LDC nonagricultural employment was in nonfinancial public enterprises compared to 4 percent in the OECD. Public enterprise employees were 1 percent of the total population in LDCs compared to 1.5 percent in the OECD (Heller and Tait 1983:44–47). However, in the 1980s and early 1990s, output and employment shares in LDCs' public sector fell, as IMF and World Bank lending to resolve external crises was usually linked to a program including privatization of public enterprise and SOE reform.

In the early 1980s, government employment as a percentage of total nonagricultural employment was 24 percent for OECD countries and 44 percent for LDCs – 54 percent in Africa, 36 percent in Asia, and 27 percent in Latin America (Heller and Tait 1983:44–47). In the 1990s, LDCs, under pressure from international financial institutions, reduced the share of employment and spending in the government sector. In 1995, the average size of government in Latin America and the Caribbean, as measured by public-sector expenditures, was 28 percent of GDP compared to 49 percent in OECD countries (Stein 1998:3).

In Brazil in 1985, a survey of the 8,094 largest incorporated firms indicated that SOEs controlled 48 percent of assets and 19 percent of employment (Baer 2003:221). Nigeria's government spending as a share of GDP rose from the 1960s to the 1970s but fell in the late 1980s and early 1990s (Chapter 16) in response to World Bank programs emphasizing privatization, market prices, and reduced government expenditures (Nafziger 1988a, 1993).

Performance of Private and Public Enterprises

EFFICIENCY

Impressions of the superior performance of private enterprise often originate in anecdotes and informal case studies of Western businesspeople and aid officials. The British economist Robert Millward (1988:143–161) carefully examines studies comparing economic efficiency to test these impressions. Few studies measure precisely the performance of public and private firms of the same size, type, and product mix, and adjust for factor prices across enterprises that management cannot control (for example, the higher wage rates and cheaper capital that public enterprises face).

Studies comparing U.S. and British electricity and transport enterprises in private and public sectors indicate that productivity or cost effectiveness was as high in the public sector as in the private sector. Yet public firms, which charge lower prices, have lower financial profitability than private enterprises (ibid.).

The following three LDC studies compare public and private firms, while statistically holding other variables equal. W. G. Tyler's (1979:477–495) analysis of the Brazilian steel industry indicates that if you control for size, whether a firm was privately or publicly owned had no significant impact on technical efficiency. K. S. Kim (1981:471–484) finds that government ownership had no significant effect on efficiency in Tanzania's food and machinery industries. H. Hill's (1982:1015–1023) study of automated weaving in Indonesia indicates that the higher productivity of

private firms relative to state firms was explained by diseconomies of scale of the larger state firms.

Thus, the Millward survey concludes that the efficiency of public and private enterprises is comparable, given a certain size firm. Indeed, even the World Bank contends (1983i:50): “The key factor determining the efficiency of an enterprise is not whether it is publicly or privately owned, but how it is managed.” If entry barriers are removed, the World Bank report states, there is no presumption that the private sector has better management. However, Millward indicates that the variation in technical efficiency from best- to worst-practice firms is greater among government firms than private firms. Furthermore, public enterprises are more likely than private enterprises to choose an excessive scale of operations. Public firms have easier access to state financing to mute bankruptcy and more pressure to provide jobs and contracts to clients and relatives than private enterprises, as the case studies below on Russia and China indicate.

On the basis of empirical studies, Joseph Chai (2003:235–261) contends that the de facto privatization of China’s agriculture (see below) and the leading role of the nonstate sector in industry were the main driving forces behind China’s rapid increase in productivity from 1979 to 1998. As the IMF (1986:50) points out, “Over the years, inefficiency has flourished in many state enterprises, its overt consequences masked by the ready availability of budgetary support.” By contrast, however, Aussenegg and Jelic (2002) find that Polish, Hungarian, and Czech companies privatized between 1990 and 1998 had lower operating efficiency and profitability than before privatization. This is consistent with Kocenda and Svejnar’s (2003) study finding that Czech domestic large-scale privatization transferred to domestic owners was characterized by concentrated ownership, especially by firm insiders who “looted” the firm at the expense of employees and the public.

In sub-Saharan Africa, corruption, mismanagement, rent seeking, and limited economic infrastructure contributed to low productivity. In the last two decades of the 20th century, the World Bank, IMF, and DC lenders pressured several African countries to privatize. In the early to mid-1980s, Ghana, Mozambique, Tanzania, and Zambia undertook enterprise restructuring, and South Africa, Côte d’Ivoire, and Senegal, because of the large fiscal drain of SOEs, restructured and privatized in the mid- to late 1990s. In 1994, devaluation of the African Financial Community franc (CFAF) in 1994 gave impetus to privatization in francophone countries. John Nellis (2003:1) finds that as a result of public hostility, “African states have been slow and reluctant privatizers; a good percentage of industrial/manufacturing and most infrastructure still remains in state hands.” Not surprisingly, many sub-Saharan privatization programs lacked adequate preparation, design, and transparency. Moreover, as of 2003, there has been no robust evaluation of postprivatization performance (Bennell 2003:310–320).

EMPLOYMENT

In many LDCs, SOEs are overstaffed. As an example, in the 1990s, when Tanzania Breweries was privatized, the workforce was reduced from 4,000 to 400, yet output increased severalfold (Bennell 2003:319).

Despite political pressures on state enterprises, most SOEs are more capital-intensive than private firms, which avoid entering capital-intensive sectors because they are characterized by high risk and substantial economies of scale (Gillis, Perkins, Roemer, and Snodgrass 1987:581–582). Also the emphasis of state ownership of the commanding heights – heavy industry, mining, transport, and banking – means high capital-labor ratios, which, as Chapter 9 indicates, are associated with high unemployment rates, as in Algeria. In the 1970s, Brazil's and India's public enterprise sector was several times (and South Korea's nine times) more capital-intensive than the private sector (Sheahan 1976:211; Jones 1976:123).

Politicians, in both LDCs and rich countries, often use employment as a rationale for initiating or rescuing projects with high capital intensity. In the United States, the "bailouts" of Lockheed, Chrysler, and Continental Illinois Bank and bids by governmental units on super accelerators or sports franchises, all capital intensive, were justified by employment effects, despite the high employment opportunity costs of these investments.

SAVINGS

Even Ghana's Kwame Nkrumah (1973:37 from a 1964 speech), Africa's most radical nationalist leader in the 1950s and early 1960s, thinks the SOEs should contribute capital for other public services

> I must make it clear that these state enterprises were not set up to lose money at the expense of the taxpayers. Like all business undertakings, they are expected to maintain themselves efficiently, and to show profits. Such profits should be sufficient to build up capital for further investment as well as to finance a large proportion of the public services which it is the responsibility of the state to provide.

But R. P. Short (1983) indicates that in the late 1970s, SOEs in 33 of 34 LDCs incurred overall deficits, which means a deterioration of capital resources (or negative savings). Chapter 18 explains India's public sector's dissaving in 1990. Negative savings occurred even when SOEs frequently enjoyed monopoly privileges, especially in mineral and energy resources.

A separate study on South Korea by Young C. Park (1987:25–27) indicates that South Korean government-invested enterprises had a 3.7-percent rate of return to capital in 1982, lower than the 10.1 percent figure for Korean industry generally but higher than government enterprises in most other LDCs. However, the government's 1983 comprehensive public enterprise reform program, which eliminated day-to-day interference by technical ministries, simplified and unified external audits, provided for an objectives-oriented evaluation and incentive system, and gave management greater power over procurement, budgeting, and personnel, improved subsequent performance.

SOCIAL AND POLITICAL GOALS

Chapter 11 discussed investment to create integration and externalities, to overcome indivisibilities, and to reduce monopolies. Some LDCs, although less than in the

1980s, are committed to increasing the socialization of capital and land for political reasons. But, additionally, the fact that DC (even U.S.) banks and aid agencies have found it convenient to hold the LDC government responsible for performance, payments, and debt has encouraged state-controlled enterprise.

In the 1960s and 1970s, many Brazilians saw SOEs as beneficial, providing crucial inputs at low prices and cheap financing for domestic enterprises. But by the 1970s and 1980s, perceptions changed as a result of SOE inefficiency, abuse of monopoly position, and the necessity for large subsidies (Baer 2003:221).

Can the state subsidize public enterprises to redistribute goods to the poor? Chapters 6 and 7 indicate the difficulties of using the state to redistribute income.

An SOE should pay for itself in the long run unless the enterprise redistributes income to lower-income recipients (or fulfills some other objective discussed earlier, such as creating externalities). A public enterprise that does not pay for itself, where the recipient of the service is not charged an economic price, involves a subsidy to him or her. As the alternative to a subsidy is resource allocation to another project, the burden of proof should fall on the subsidy's advocate.[5] This redistribution policy would be consistent with, for instance, subsidies to goods consumed disproportionately by the poor, such as sorghum (Bangladesh in 1978) and low-quality rice (Sri Lanka, 1968–77), but not with subsidies for fuel (Nigeria), electricity (most of Africa), or food generally in urban areas with above-average incomes (Poland and Tanzania in the early 1980s).

David Parker (2003:553) wants LDC governments to insist that competition and regulation policies obligate newly privatized firms to assist in poverty reduction. For example, the state could require that electricity, water, sewerage, and other basic services are provided to rural areas and urban shanty towns.

In South Africa, the Congress of the South African Trade Unions (COSATU), a leader in the country's long anti-apartheid struggle and part of the African National Congress–led government alliance since 1994, opposed privatization as largely benefiting the global rich. Indeed, in 2001, COSATU led a massive two-day antiprivatization strike. COSATU agreed to the government relabeling the program SOE "restructuring." However, under pressure from COSATU, the government included a trust, an equity management fund for venture capital, and a broadening of ownership and participation in SOEs, all to empower historically disadvantaged groups (HDGs). Still, progress toward privatization and HDG goals was slow, deliberate, and haphazard (Schwella 2003:292–293).

Determinants of Public Enterprise Performance

Why do some public enterprises perform better than others?[6] Why do SOEs in South Korea and Sweden generally achieve better economic results than those in Ghana?

[5] Tariffs have an effect similar to subsidies. Government distorts prices, benefiting special interests by redistributing income from consumers or merchants to industrialists.

[6] This section is based on Ayub and Hegstad (1987:26–29).

Why is India's Hindustan Machine Tools dynamic when most other Indian public enterprises are far less successful?

1. State enterprises perform better with competition; no investment licensing; no price, entry, nor exit controls; and liberal trade policies (low tariffs, no import quotas, and exchange rates close to market prices). In Pakistan, the highly profitable parastatal Heavy Mechanical Complex faces competition from the privatized Ittefaq Foundry in road rollers and sugar mills' output; with imports and another public enterprise (Karachi Shipyard) in constructing cement plants; and with SOE Pakistan Engineering Company in manufacturing electrical towers, boilers, and overhead traveling cranes. Since 1969, India's Hindustan has learned much about remaining competitive from exporting, which has exposed the company to new technologies and management approaches. When economies of scale are not important, breaking up large enterprises, such as the Bolivian Mining Corporation and Sweden's Statsforetag (a holding company), can increase competition.
2. Successful performing SOEs, such as those in Japan, Singapore, Sweden, Brazil, and post-1983 South Korea, have greater managerial autonomy and accountability than others do (Kohli and Sood 1987:34–36). Excessive interference in investment, product mix, pricing, hiring and firing workers, setting wages, and procurement by government suffocates managerial initiative and contributes to operational inefficiencies. Government should demarcate its role (as owner), the board of directors' role (setting broad policy), and the enterprise management role (day-to-day operations). Central or local government rarely has the information or the skills essential for detailed control over parastatal operations. South Korea's 1983 reform is a good example of increasing managerial autonomy and reducing government interference.

   Good management usually requires decentralizing power in favor of a professionally skilled board of directors and judging managers by enterprise viability and a limited number of performance indicators. In Sweden the cabinet (the formal owner of the limited liability SOE stock corporation) delegates ownership responsibility to a staff of eight professionals in the Ministry of Industry, which oversees 90,000 people in state industries. These professionals do not overpower the board with their ownership role except in times of crisis or when state financial support is required. Korea's reforms also increased decentralization and evaluation by enterprise performance.

   Until the mid-1980s, managers of SOEs, which comprised 60 percent of Ghana's industrial output, had poor performance and little autonomy. In practice a Ministry of Finance and Economic Planning board set prices and approved wage contracts; the Ministry of Labor authorized worker dismissal; the Ministries of Trade and Finance allocated import licenses; the Bank of Ghana approved import licenses; and the Ghana Investment Center and the Ministry of Interior approved foreign staff quotas.

Although many LDCs suffer from the Ghanaian problem of too much interference and unclear, fragmented lines of authority, other LDCs lack any effective control, creating uncertainty, misunderstanding, and distrust, with reactions sometimes swinging to the other pole, excessive control.

Financial autonomy is a major factor contributing to SOE managerial effectiveness. Two French steel parastatals, Usinor and Sacilor, which acquired funds for expansion from their government ministry, have had chronic losses. But public firms scrutinized by independent bankers before getting investment funds usually perform better. Excellent financial management involves specifying financial objectives, monitoring their progress, and holding managers accountable. Government should set SOE noneconomic goals clearly and evaluate whether the firm is using the most cost-effective way of achieving the goal, so that SOE managers do not use these same goals as an excuse for poor performance. In the mid-1980s, Zambia imposed price controls on refined oil and fats use for vegetable oil products and soaps. The controls resulted in large losses and poor staff morale and shifted output away from oil and fats, the opposite of the government's social priorities. Finally, government should not allow substantial transfers between SOEs and government to undermine firms' ability to acquire "true" financial results.

3. Government reduces (or keeps) the size of the public sector commensurate with technical and managerial skills. Beginning in 1983, South Korea privatized a number of SOEs to improve the effectiveness of government oversight (Park 1987:25–27).

Privatization

Privatization refers to a range of policies including (1) changing at least part of an enterprise's ownership from the public to the private sector (through equity sales to the public or sale of the complete enterprise when capital markets are poorly developed), (2) liberalization of entry into activities previously restricted to the public sector, and (3) franchising or contracting public services or leasing public assets to the private sector. Government needs improved competition policy in the private sector if denationalization is to result in gains in allocative efficiency. A government selling a public enterprise faces a tradeoff between the higher sale price when a privatized firm is offered market protection and the greater economic efficiency when the firm operates under competitive market conditions (Cook and Kirkpatrick 1988:3–44).

For Paul Cook and Colin Kirkpatrick (2003:213–214), the case for privatization is based on the adverse effect of an "overextended" public sector on economic growth. As William Megginson and Jeffrey Netter (2003:33) state: "Privatization arose [historically] not because of ideas but because government ownership and management of firms did not work." The survey by Cook and Kirkpatrick (2003:209–219) indicates no significant relationship between SOE size and economic growth. According to them, the literature suggests that fiscal discipline, price and

trade liberalization, *and* privatization help determine LDC growth; however, taken individually, each variable is limited in its effect.[7]

What are the objectives of privatization? In addition to improving economic performance, other objectives include reducing subsidies to SOEs, raising revenues from SOE sales, and increasing the private sector's output share (Cook and Kirkpatrick 2003:211).[8]

Some Pitfalls of Privatization

The transition from centrally managed state enterprises to a liberal, privatized economy is politically and technically difficult. Prices masked by controls inevitably rise. Forcing inefficient firms to close is likely to be unacceptable where labor is not mobile, as in Africa, or unions are well-organized, as in India. Skilled people are usually lacking. Moreover, government may require parastatals to achieve social objectives, such as setting quality standards, investing in infrastructure, producing social goods (especially for low-income earners), controlling sectors vital for national security, wresting control from foreign owners or minority ethnic communities, rescuing bankrupt firms in key sectors, avoiding private oligopolistic concentration, raising capital essential for overcoming indivisibilities, producing vital inputs cheaply for the domestic market, capturing gains from technological learning, and creating other external economies that private firms would overlook. To illustrate, Nigeria's abolition of the government Cocoa Marketing Board and licenses for marketing cocoa in 1987 resulted in poor quality control and fraudulent trading practices, which adversely affected the reputation of Nigeria's cocoa exports. The government subsequently incurred substantial costs reintroducing inspection procedures and marketing licenses (Hackett 1990:776).

Joseph Stiglitz (2002b:157) indicates that "In a World Bank review of the ten-year history of transition economies, it became apparent that privatization, in the absence of the institutional infrastructure (like corporate governance), had no positive effect on growth. The Washington Consensus had again gotten it wrong."

The effectiveness of creating market incentives and deregulating state controls presupposes a class able and willing to respond by innovating, bearing risk, and mobilizing capital. Although significant groups of indigenous entrepreneurs have

[7] Studies assessing LDC privatization also include Jalian and Weiss (1997:877–895); Aziz and Wescott (1997); Short (1983:30–36); Heller and Tait (1983:44–47); Stein (1998); Baer (2003:220–234); Chai (2003:235–261); Schwella (2003:291–309); Bennell (2003:310–321); Saal (2003:560–582); Saal and Parker (2003); Millward (1988:143–161); Aussenegg and Jelic (2002); Kocenda and Svejnar (2003); Nellis (2003); Park (1987:25–27); Shirley and Walsh (2000); Siniscalo, Bortolotti, and Fantini (2001); Birdsall and Nellis (2003:1617–1633); and Cook and Kirkpatrick (1988).

[8] On this, Ramirez (2003:263) argues that Mexico and Chile privatized to attain a "functionally neutral and minimalist state." On the first – economic performance – India's disinvestment minister Arun Shourie was motivated by his shock from inefficiency and scandal involving SOEs. According to Solomon and Slater (2004:A1), from 2000 to 2003, Shourie used a confrontational approach in privatizing 34 SOEs, a larger number than in the previous three decades. He not only resisted ministers, party officials, and bureaucrats, who received patronage from SOEs, but also striking workers and their supporters, some of whom threatened Gandhian civil disobedience.

emerged in South Korea, Taiwan, Brazil, Kenya, Nigeria, and Côte d'Ivoire, the private sector in Bangladesh, Haiti, Tanzania, and Zambia, for example, is much more limited. Additionally, some regimes have restricted the commercial and industrial enterprises of such visible minorities as the Asians in East Africa.

Even where privatization is desirable, government may want to proceed slowly to avoid a highly concentrated business elite being created from newly privatized firms falling into a few hands, as was true during indigenization in Africa and the transition in Russia.[9] It would be ironic if two goals of privatization – improvements of efficiency and competition – were sabotaged because of creation of new oligopolies from a limited number of buyers. In Brazil, Werner Baer (2003:230) regrets that the lion's share of gains from increased efficiency from the 1990s' privatization went to the new owners, much from reduced employment.

Moreover, the fact that the private sector may lack the requisite business skills and experience means that an emphasis on providing private competition to the public sector and a gradual reduction of the relative size of the public sector may be preferable to abrupt privatization. The World Bank/IMF (1989:83) states: "The rationale for privatization is most straightforward and least controversial where a public enterprise is engaged in a purely commercial activity and is already subject to competition."

Although Ghana's reform of state-owned enterprises (SOEs) in the 1980s was to enhance their competitiveness and management responsibility, restructuring failed to modify management or corporate boards, criteria for management promotion and pay, or rules for allocating capital among SOEs. Indeed, existing managers, many of whom should have been discharged, oversaw enterprise divestiture, workforce retrenchment and restructuring, as unrelated activities, disproportionately laying off production workers and retaining administrative and clerical staff, and sometimes, in the absence of guidelines for workforce requirements, reporting no redundant staff (Davis 1991:987–1005).

Public Enterprises and Multinational Corporations

Many LDCs, including much of Latin America as well as South Korea, Taiwan, India, and Indonesia, have viewed SOEs as a counterbalance to the power of MNCs, especially as SOEs began moving into markets previously dominated by MNCs (Gillis, Perkins, Roemer, and Snodgrass 1987:584; Vernon 1981:98–114). Yet, since the 1970s, joint SOE–MNC ventures and other forms of domestic–foreign tie-ins have become more common and MNC-domestic private firm ventures much less common. At best in these ventures, the LDC government can protect its national interest better, whereas MNCs can reduce political risks. But for some LDCs, especially in Africa, expanding public enterprises frequently did not reduce dependence much on MNCs, as indicated by our discussion of Nigeria in Chapters 6, 11, and 14. Multinational corporate ownership was replaced by MNC–state joint enterprises, which enriched

[9] On Russia, see Filatotchev (2003:323) on privatization "give-aways," and Goldman (2003).

private middlemen and women and enlarged the patronage base for state officials, but did little to develop Nigerian administrative and technological skills for subsequent industrialization. Kenya, Tanzania, Zaire, Malawi, and Côte d'Ivoire made even less progress than Nigeria in using public enterprises to reduce dependence on MNCs (Nafziger 1988:53). Tropical African countries have been less successful than Argentina, Brazil, Mexico, Peru, Venezuela, South Korea, Taiwan, India, and Indonesia in using MNC technology transfer to improve their own industrial capabilities.

Adjustment and Liberalization in Eastern Europe, the Former Soviet Union, and China

The model of internal and external balances above clarifies the need for macroeconomic stabilization to adjust to external deficits and debts and stagnation or collapse of the domestic economy, and structural (or supply-side) adjustments, including economic liberalization and reform, for long-term remediation of LDCs. From the perspective of the IMF, World Bank, and the **European Bank for Reconstruction and Development (EBRD)**, a development bank based in London, which loans funds to governments of Eastern Europe and the former Soviet Union, virtually every developing and transitional country needs to adjust and reform. As IMF Managing Director Jacques de Larosiere asserted in 1987: "Adjustment is now virtually universal [among LDCs]. . . . Never before has there been such an extensive yet convergent adjustment effort" (*IMF Survey*, February 23, 1987, p. 50). Since the collapse of communism, the IMF would add transitional countries to other LDCs.

The remainder of this chapter shows some concrete problems in undertaking reform and adjustment in transitional economies. This discussion focuses more attention on China, Russia, other states in the former Soviet Union, and Eastern Europe, because their experiences demonstrate in starkest fashion some of the prospects and problems from economic liberalization and reform. To be sure, the developing countries of Africa, Asia, and Latin America have undergone painful institutional and structural adjustments to reform their economies, but these changes have been less abrupt and the consequences less astounding than in Russia and Eastern Europe.

In 1960, a confident Soviet Premier Nikita Khrushchev, when at a summit meeting with President Dwight D. Eisenhower in the United States, boasted that "we will bury you" and predicted that Soviets would be more prosperous than Americans by 1980. However, the Soviet Union suffered through stagnation during the 1970s and early 1980s, so that, according to Harvard's Abram Bergson (1991:29–44), in 1985, when Communist Party leader Mikhail Gorbachev came to power, consumption per capita in the Soviet Union was only about 29 percent of that in the United States (see Chapter 3).

Socialism collapsed in Eastern Europe about 1989 and in the Soviet Union in 1991. All these countries faced painful transitions to a market economy, with falling real GDP, high unemployment, high inflation, and increased poverty and inequality in initial years of transition, before eventually attaining positive growth and improvement

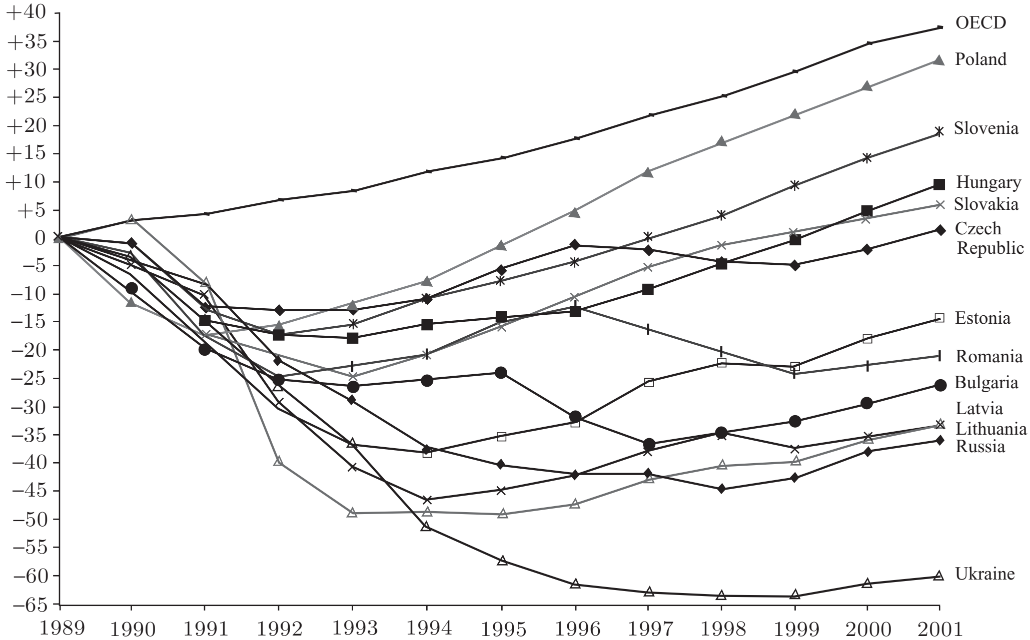


FIGURE 19-2. Real GDP Percentage Change Index (1989 = base). *Source:* Svejnar 2002:9.

in other variables. Indeed the transition is like a valley between the two hills of communism and capitalism. Figure 19-2 shows the sequence of inflection (turning) points by transitional countries: Poland, the first, in 1991, Slovenia 1992, Hungary 1992–94, Czech Republic 1992–94 (forming a "W" with later growth reversal), and Slovakia 1993, the only ones to recover pre-1989 GDP levels by 2001. Russia did not attain its turning point until 1998. Several others (but not Ukraine) turned around between 1993 and 1998, albeit in some instances only growing temporarily (Svejnar 2002:9).

By 2004, Russia's GDP was only 80 percent of its 1990 level (Figure 19-2). The IMF (1995d:20) estimates that, if you adjust for "black market" or unmeasured sales, 1994 real GDP for Russia may have been 40 percent higher (an index of real GDP, with 1990 = 100, of 67 not 48), thus falling only one-third from 1989 to 1994 (Table 19-1). Still, average living standards probably fell less than one-third to 1994 because of investment declines, a fall in the production of goods not desired by consumers, a reduction in searching and queuing costs due to the charging of market prices resulting from liberalization, and the cutback in waste and other inefficient resource use with the demise of central planning. Ukraine and Kazakhstan's GDP understatement was probably of a similar relative magnitude to that of Russia (ibid.).[10]

[10] Andrei Schleifer, an economic advisor to Russia's President Boris Yeltsin, 1991–97, and Daniel Treisman (2004:20–38) see Russia as a "normal" middle-income country. They argue, that because of the rapid growth of Russia's unofficial economy and an overstatement of pre-1991 GDP, Russia's GDP fell less than the IMF and Svejnar indicate. Moreover, according to Schleifer and Treisman, living standards, which fell even less than GDP, almost recovered their 1990 level in 2001.

TABLE 19-1. Russia: Index of Real GDP, 1990–2004

1990	100
1991	95
1992	81
1993	74
1994	67
1995	62
1996	60
1997	60
1998	57.5
1999	60.6 (with 5.4% growth)
2000	65.6 (8.3% growth)
2001	69.4 (5.8% growth)
2002	71.9 (3.6% growth)
2003	75.8 (5.4% growth)
2004	79.6 (5.0% growth)

Sources: IMF, *World Economic Outlook*, various years.

Russians and other peoples of the Soviet Union often failed to analyze the reasons for their economic decline. Dudrick et al.'s (2003:220) characterization of many from Georgia, a former Soviet republic facing greater decline than Russia, is also true of many Russians:

> The fact that the . . . economy collapsed after the actual political breakup of the Soviet Union led [many people] to attribute their pauperization to the demise of the Soviet state . . . rather than its inherent economic weaknesses. They continued to associate the Soviet Union with economic stability.

Economists debate whether the transition to the market should be gradual or abrupt. Columbia's Jeffrey Sachs (1993), an advisor to the governments of Solidarity leader Lech Walesa in Poland and later Boris Yeltsin in Russia in their transitions to the market, argues in favor of "**shock therapy**," an abrupt transition to adjustment and the market. The critic Vladamir Popov (2001:35) contends that shock therapists put a heavy emphasis on "introducing the whole reform package at once to ensure that it became too late and too costly to reverse the reforms."

Howard Wachtel (1992:46–48), an evolutionist who emphasizes the gradual building of institutions, contends that shock therapy downplays the creation of a small-scale private sector, small independent banks, market reforms in agriculture, and funds for a "safety net" for social programs and full employment for the population. Kazimierz Poznanski (1996:xix), who stresses that institutions form at a relatively slow pace, contends that attempts to radically remake institutions are potentially destabilizing and costly. Replacing an established institution with an untested project is dangerous. Indeed, by the mid-1990s, electorates in Poland, Russia, and Hungary, disillusioned with market reforms, voted the former Communist Party, often

TABLE 19-2. Inflation in Russia, 1990–2004

	Index of consumer prices
1990	100
1991	192.7 (92.7% increase)
1992	2799.9 (1353.0% increase)
1993	27,885 (895.9% increase)
1994	112,098 (302.0% increase)
1995	325,196 (190.1% increase)
1996	480,640 (47.8% increase)
1997	551,294 (14.7% increase)
1998	704,003 (27.7% increase)
1999	1,307,333 (85.7% increase)
2000	1,579,258 (20.8% increase)
2001	1,767,190 (11.9% increase)
2002	1,926,237 (9.0% increase)
2003	2,184,353 (13.4% increase)
2004	2,396,235 (9.7% increase)

Average of 105.5% increase annually over the period.
Sources: IMF, *World Economic Outlook*, various years.

refashioned as social democrats or democratic socialists, to a parliamentary plurality in place of the party of economic reform.

In response to critics of shock therapy, Sachs (1994:14–18) argues correctly that production in the Soviet Union was in decline, inflation rates were surging, and the black-market value of the ruble was falling in the immediate years before President Yeltsin's transitional government came into power in late 1991. Moreover, Sachs charges that United States and IMF aid to Russia was disbursed too slowly, and that shock therapy could not have failed because it was never tried.

Popov (1996:1) describes Russian reform as inconsistent shock therapy. Russian reformers introduced a Polish-type shock therapy by deregulating prices instantly in January 1992, but failed in macroeconomic stabilization, eliminating subsidies, and shutting down loss-making enterprises. The pressure of interest groups and the lack of consensus between center and regions, between the parliament and government, and within the government itself, were at the heart of the failure of shock therapy. As is frequently true in Latin America, Russia had little choice but to tolerate a high rate of inflation in the early 1990s (see Table 19-2), inflation that reflected the lack of political consensus (Popov 1996:20). But this inflation was costly for those on fixed income, as a Ukraine woman indicated: "When I retired, I had 20,000 rubles in my savings account. . . . But what the government did with it – the government we trusted with our money! They've indexed savings so that inflation ate it! That money is now not enough for bread and water" (World Bank 2001i:53).

Reddaway and Glinski, *Market Bolshevism: The Tragedy of Russia's Reforms* (1999), are the most critical of shock therapy. They accuse President Boris Yeltsin,

his domestic advisers, U.S. government officials and scholars, and "functionaries of the IMF" of promoting shock therapy in late 1991 as part of a "Russian historical pattern of "revolutions from above." In doing so, they resisted any "civic democratic" opposition to the encrusted Soviet party and state leadership, the *nomenklatura*.

The Collapse of State Socialism and Problems with Subsequent Economic Reform in Russia

After the late 1980s, state socialism fell apart before our eyes. The Soviet Union measured income as **net material product (NMP)**, that is, gross domestic product minus nonmaterial services, depreciation, and rent. From 1981 to 1990, income fell by 3 percent and collapsed in the early to mid-1990s.

What brought the Soviet Union down? Here is the answer of Mikhail Gorbachev (2003:30), Soviet leader, 1985 to 1991:

> What happened to the Soviet Union happened mainly for domestic reasons. It was a failure of the model based on a command economy and dictatorship. The rejection of freedom and democracy, the decisionmaking monopoly of one party, and the monopoly of one ideology all had a chilling effect on the country. That model turned out to be incapable of making structural changes. It did not open up ways for initiative and was overly centralized.

The following elaborates on Gorbachev's analysis of failure, examining the reasons for the collapse of state socialism in Russia and its problems during the first decade of reform, two interrelated phenomena. Gerard Roland (2002:47) is correct in emphasizing the failure of Russia's institutional transformation: inadequate creation of "the executive, legislative and judicial branches of government; a free press; new social norms and values; an openness to private organizations and to entrepreneurship; a network of regulators; and a new network of contractual relationships." Our discussion of this case and subsequently Poland and China provides insight into the political economy of liberalization and adjustment in developing countries, even though their collapses and transitions were less dramatic than Russia's.

DISTORTED INCENTIVES AND PRICE SIGNALS

Under Soviet central planning, firms produced low-quality output, with incorrect assortments, avoiding preshrunk fabrics or reducing the impurities of metals, as bonuses depended on the quantity of output. To maximize output, managers were tempted to reduce quality and disregard the composition of demand. If the rewards for nail output is gauged in tons, only giant nails will get produced, whereas if the output plan is stated in numbers of nails, firms will make only the tiniest ones (Kohler 1992:5–14).

Soviet planning involved **material balance planning**, the detailed allocation by central administration of the supply and demand for basic industrial commodities. The material balance system was slow, cumbersome, lacked clarity, and distorted incentives. The Soviets used the previous year's production as the target for the next

year. Enterprises worked for part of the year without knowing what their targets were. Toward the end of the month or year, they may have "stormed" to reach the target, or deliberately slowed down operations so as not to increase targets too much for the subsequent period. The enterprise management's motivation was to hide the true capabilities of the plant from planners.

Administered input prices do not show where the firm can best use resources, thus providing false signals to firms. These establishments overorder and hoard labor and raw materials since they do not bear the cost of excess inputs needed to meet quotas or as insurance against future shortages (Kohler 1992:12).

Incentive schemes reward managers for maximizing variables such as output rather than profit or efficiency. But even profits are poor guides to enterprise behavior when prices are set without reference to supply and demand. These prices give the wrong signal, spurring enterprises to produce too little of what is short and too much of what is in surplus. Moreover, the weak link between domestic and international prices erodes the government's response in identifying and closing inefficient enterprises (Kaminski 1992:41).

THE PARTY AND STATE MONOPOLY

The Communist Party, with its interlocking and overlapping authority over the Soviet government, an institution with highly embedded interests, had a monopoly over political power, which also meant a monopoly over economic power. "Redness" or political correctness was a more important criterion than expertness in making decisions.

The party, as controller of the state, bore the full burden of economic management. Party leadership gained from concentration and limiting competition, as managers and workers received rewards for increased enterprise profits and revenues. Dissatisfaction with economic performance became a direct challenge to the political order. Discussion, intellectual ferment, and technical innovation threatened the position and authority of party leaders and enterprise managers.

Even reforms that encouraged entrepreneurial activity suffered from the Communist Old Guard's advantages in obtaining permits and access to funds. Under reform, managers, bureaucrats, and party apparatchiks gained control of the more viable socialist enterprises through privatization. In other cases, government officials looted the enterprises, either controlling the newly privatized firms or leaving no assets for others. After 1988, managers (and other shareholders, including sometimes workers and local governments) gained autonomy at the expense of departments (ministries), who no longer could appoint them (Kaminski 1992:25; Weisskopf 1992:28–37; Blanchard, Boycko, Dabrowski, Dornbusch, Layard, and Shleifer 1993:42–44). Much of privatization involved large-scale give-aways to insiders; mass voucher privatization had only limited effect. Liberals had little credibility in leading market reforms. In Russian privatization, the reformers encouraged workers and mangers in enterprises to defy central ministries (Shliefer 2002:17–19).

The Soviet leadership fused the state with the economy, creating a built-in bias against change. State socialism had evolved after Stalin's period, and had become

softer, leakier, and less oppressive over time. Decentralization meant the decay of the party and state, and their roles in the economy. More sophisticated methods of control replaced the brutal, random, and indiscriminate repression of Stalinism. However, the Soviet leadership did not match this softness with institutional changes recognizing the greater autonomy of decentralized units. Indeed, as these units amassed greater control over their surpluses, they reduced the sequestering of these surpluses by the central government, eroding its system for revenue collection (McKinnon 1993:122–123) (see Chapter 15).

Gorbachev and the reformers implementing perestroika overestimated the reformability of Soviet socialism, which after years of suppression of interest and voice, had little capacity for adaptation, redesign, or self-correction. Bartlomiej Kaminski (1992:18–37) argues that state socialism is nonreformable, as direct controls were essential for the party and state to defend its privileged position. Party officials and apparatchiks opposed, and even sabotaged, reform because it reduced their power and their ability to solicit kickbacks and other benefits. The large number of officials operating in the black market opposed the effect of market reform, which reduced the black market and officials' incomes and profits. The party monopolized policy initiatives, channeling special interests into association with the party.

Pathologies endemic to the Soviet bureaucracy included secrecy, formalism, cumbersome procedures, rigidity, and the tendency to concentrate on control rather than performance. The party controlled the state by using the **nomenklatura system** (Kaminski 1992:18–37), the power to recommend and approve managers in administration and enterprises, of appointments and promotions to control access to government positions. James R. Millar (1994:5–6) argued that

> the "party" is over, but the nomenklatura lives on. The old members of the nomenklatura still occupy the top positions in Russian society: in industry, government, educational and research establishments, [and] the Duma.... The [educated and successful] nomenklatura ... forms a self-aware network that knows how to protect itself.... Meanwhile the nomenklatura is quietly repositioning itself to control the new private economy.

Reddaway and Glinski (2001) argue that President Yeltsin chose "in favor of the commercialized nomenklatura and of its sympathizers in the West, at the expense of the middle class and of the democrats, putting the new Russia on the road toward a kind of liberal market authoritarianism – or ... market bolshevism."

Decision making in the Soviet Union was highly centralized, with the Communist Party, its General Secretary (later the country's president), the Politburo (the policy-setting body appointed by the party), and **Gosplan** (the State Planning Committee, which reported directly to the Politburo) making the decisions. Centralized decision helped focus on particular sectors and provide resources for them. When Gorbachev removed Gosplan and central management, factories, cities, regions, and republics (independent states after 1991) were free to do what they thought best, resulting in new independently decision-making organizations, thus destabilizing the economy (Angresano 1992:385; Ellman and Kontorovich 1992:22).

According to Gary Krueger (1993:1–18), Gorbachev did not sequence perestroika (economic restructuring) correctly. He decentralized decision making to the enterprise without introducing the market mechanism and price reform. Although enterprises made more of their decisions and were self-financing, they still were obligated to make deliveries at set prices to state agencies; prices were not adjusted to reflect supply and demand.

State enterprise law, implemented after 1968, meant that Gosplan and *Gosagroprom*, the State Agro-Industrial Committee (replaced by *Gossnab*, the State Commission of Food and Procurement in 1989), substituted state orders for plan targets. Central intervention fell dramatically from 1987 and 1989, with the number of centrally distributed commodities declining from 13,000 to 618. The state order system still made production decisions at the highest level but no longer disaggregated these decisions at the enterprise level. Enterprises stopped producing low-profit items, increased their barter, and concentrated on potentially high-value commodities, failing to produce the wider assortment of goods under previous planning. So whereas enterprises increased overall output (and light industrial and food output), they reduced the amount of machinery, metals, chemicals, and wood produced (Krueger 1993:1–18). David Kotz (1992:14–34) criticizes Russian leaders for failing to create the essential capitalist institutions to replace socialist institutions that were abolished.

Jan Winiecki, President of the Adam Smith Research Center in Warsaw, Poland, contends (1992:271–295) that the ruling stratum in Soviet-type economies, who have controlled the means of production, maximized **economic rents**, or returns to a factor of production in excess of what was required to elicit the supply of the factor. Thus, they favored powerful groups (Communist Party officials and apparatchiks) in making decisions about wealth distribution. Party officials, from the center to the enterprise, used the principle of nomenklatura to achieve their goals. Officials made appointments on the basis of loyalty rather than managerial skill, extracting rent from side payments (access to goods in short supply) and kickbacks from firm managers. Marshall Goldman (2003) labels Russia's economic system "nomenklatura piratization." According to Goldman (2003:103, 123), Russia's transfer of wealth from the state into the hands of so few oligarchs was unprecedented historically.[11] Oligarchs were drawn from three categories: the nomenklatura, former factory managers or directors, and outsiders, those on the margin of society, who acted outside the law during the communist period. Afanasyev (1994:21–27) argues that, after 1991, central planning and distribution agencies in Russia have changed names but not functions, namely, the suppression of all market-oriented competition.

In reformist Russia, privatization was nomenklatura privatization, a process that transferred much of the country's wealth into the hands of the Communist Party's

[11] Schleifer and Treisman (2004:28–29) dissent, contending that "Oligarch-controlled companies have, in fact, performed extremely well. . . . Have the oligarchs stripped assets from the companies they acquired in privatization, rather than investing in them? The audited financial statements of these companies suggest that their assets have grown dramatically, especially since 1998." Goldman (2003:73–74, 208–209) criticizes Schleifer and his colleagues' policy advice and their rationale that, under rapid privatization, the new owners would "fight to put in place the institutions they found missing" (Goldman 2003:74).

senior officials, although at odds with communist ideology. The process began with Mikhail Gorbachev in the late 1980s. The participants socialized under the Soviet nomenklatura system continued their dysfunctional behavior into the post-Soviet period, continuing the intolerance, incompetence and corruption of that system. This nomenklatura capitalism committed to inside privatization masqueraded as liberalism. The capitalist nomenklatura and their nouveau rich allies today are vociferous opponents of the Communist Party, which is committed to nationalization (Knab 1998; Yasmann 1998; Bernstein 1999).

CONTRADICTIONS UNDER DECONTROL

During the 1970s and early 1980s, the late period of Leonid Brezhnev's rule, when corruption and rigidity among Soviet officials increased, the central administrative authority deteriorated. From 1960 to 1988, the Soviet shadow economy grew rapidly, according to Soviet economists. The 5 billion rubles of unrecorded sales in 1960 added only 6 percent to recorded sales, whereas the 90 billion rubles of unrecorded activity in 1988 added 23 percent (Flaherty 1992:1–14; Grossman 1993:15).

Gorbachev diagnosed the major determinant of stagnation in the late Brezhnev period as the "relaxation of discipline," that is, less adherence to commands, such as output targets, technological rules, laws, and regulation. Instead of increasing investment and rationalizing the command system, Gorbachev undermined planning by envisaging an increase in machine building too abrupt to absorb, an antialcohol campaign that reduced turnover tax revenues and increased queues at liquor stores, a campaign against unearned income that hurt black-market activities that were essential to circumvent the rigidity of material balance planning, the reduced pressure of economic rewards and punishments, the removal of the Communist Party from economic planning, and the attack on middle- and upper-level bureaucrats for their corruption. This attack, echoed by the media, demoralized the bureaucracy and increased the resistance of subordinates to carrying out the orders of superiors. The grip of the official ideology on the public mind was getting increasingly impotent, weakening economic incentives and the traditional command structure (Ellman and Kontorovich 1992:10–22).

Increasingly, perestroika and the collapse of socialism, accompanied by the relaxation of censorship and the emergence of independent media and political parties, contributed to a loss of legitimacy of the old social and political order. In the late 1980s and early 1990s, murders increased substantially, bribery and corruption were rampant, and other registered crime rose considerably (Ellman and Kontorovich 1992:2–5, 14). Jehu Eaves estimated that organized crime controlled 20 percent of new enterprises in the 1990s. In 1991, St. Petersburg mayor Anatoly Sobchak pointed out, "The country today is in fact out of control, because the old structures have been destroyed and the new ones have not emerged" (Eaves 1992:16–18, 21).

Decontrol of economic activity brought many activities out to the light of day, but also created new opportunities shielding illegal activity through sweetheart deals with SOEs, asset-stripping, and favorable buyouts under the rubric of privatization.

In 1993, Yeltsin, in what sounded like an admission of defeat, said that mafia activity was destroying the economy, destabilizing the political climate, and undermining public morale. The mafia is not monolithic yet is interwoven within the fabric of Russia's bureaucracy and ruling elite. In the free-for-all struggle to grab Russia's material wealth, the 3,000–4,000 mafia gangs, with their corruption, criminality, and violence, have major advantages, not the least of which is their connections to major sections of the government bureaucracy, including senior finance ministry (or department) officials who want to undercut private commercial banking. Moreover, party officials have used the opening of private commerce to siphon their illegal wealth accumulation. Although inflation wipes out substantial wealth, the numerous mafia organizations have accumulated large wealth, much in foreign currency, to control many of the new privatized assets. The mafia, which has substantial international ties, deters entry by some legitimate businesses, increases the cost of business for others, and has dampened the interest of Western firms and subjected many Western business people to violence, and, in some instances, murder, for failing to comply (Handelman 1994:83–96).

Gregory Grossman (1993:14–17) thinks the Russian government, by liberalizing, can contain the mafia and shadow economy. For Stephen Handelman (1994:83–96), however, the mafia undermines reform, spawns extraordinary violence in major cities, and helps fuel a growing ultranationalist backlash. However, the boundary between criminal and legal business activity is hazy, with police and politicians ascribing mafia connections to anyone with what seems an unreasonable amount of money. Indeed, Handelman contends that Russian entrepreneurs operating by the rules find it impossible to survive in the face of official and criminal competition, and that the mafia is the only institution that benefited from the collapse of the Soviet Union. He argues that Russia needs to construct a civil society, with an independent judiciary, before the market can safely operate.

DISTORTED INFORMATION

Starting in the late 1980s and culminating in 1991, rulers no longer collected information about economic opportunities, enforced their planning preferences, or received feedback on the performance of managers and their units. Subordinates withheld and distorted information used to evaluate them. To an even greater extent than before, officials in enterprises, farms, and ministries padded and politicized data to avoid sanctions and collect rewards. The planners' system of outside evaluation broke down (Kaminski 1992:19–33) and contributed to the scarcity of information during the 1990s.

ENTERPRISE MONOPOLIES

Soviet firms were monopolies, inflating prices and disrupting supply after the collapse of central planning. In 1991, planners had organized industry into 7,664 product groups, in which 77 percent were produced by single firms. Seven percent of Soviet industrial enterprises produced 65 percent of aggregate industrial output and employed more than 50 percent of the industrial labor force.

To increase their control over supply that would otherwise be unreliable and to reduce turnover (or sales) taxes, Russian firms have been highly vertically integrated and plagued by gigantimania, encompassing steps from producing inputs and materials to selling the final output. In 1992, the average Russian firms employed about 800 workers, twice as many as the average Polish firm and 10 times as much as the average firm in the West. Half of 1992 industrial output was produced by 1,000 giant enterprises that averaged 8,500 employees.

Suppliers also were monopolists. Thus, the manager of a shoe factory enjoyed a monopoly but had to deal with producers of leather, nails, rubber, and other inputs who were also monopolists. But reform replaced material balance planning with the market, reallocating resources away from their usual sectors. The reduction of suppliers' obligations to public enterprises resulted in price increases, output declines, excessive wage increases, and the deteriorating reliability of the supply system. Decentralization in input–output links meant supplies could reduce deliveries to increase their bargaining power and perhaps their prices. Firms stopped producing low-profit items and increased their barter. The result was that traders and speculators with monopolistic control over commodities enjoyed real price increases of several-fold in less than a year in 1991–92 (Eaves 1992:16–18, 21; *Economist*, September 13, 1992, p. S13; U.N. 1992:57; Ellman and Kontorovich 1992:22–30; Weisskopf 1992:29). To avoid price distortion by monopolists, a transitional economy should demonopolize (break up large industrial concentrations) before or at the same time as, not after, price decontrol. But these firms have been difficult to split up. Popov (1996:18) advocates foreign trade deregulation and currency convertibility as efficient ways to fight monopolistic pressure on prices in transitional economies. Russia, unlike Poland, lacked the ability and will to follow this advice, especially early in the transition.

THE LACK OF SCARCITY PRICES

(1) The Soviets allocated resources inefficiently, disregarding scarcity prices. Without an interest rate to ration capital, planners allocated funds bureaucratically, with little relationship between net worth and capital expansion. In certain sectors, enterprise managers overordered and invested, whereas other sectors were neglected.

In the late 1980s, Russia used 15 times the steel, 9 times the rubber, and 6 times the energy that the United States did per unit of GDP. For these inputs, industrial output was a value subtractor, meaning, for example, that factories using rubber produce tires whose world market prices were less than the value of the raw material embodied in them! Not surprisingly, Russia has not experienced a boom in manufactured exports with the breakup of the Soviet Union (*Economist*, September 16, 1992, p. S10; *Economist*, October 14, 1992, p. 333); indeed, industrial output fell through the mid-1990s, as firms unable to compete at world market prices contracted or collapsed. Russia, which underpriced materials and resources and overpriced finished goods relative to world prices faced greater adjustment problems during transition than East and Central Europe, where prices were closer to the world level (Popov 1996:8–11).

Firm negative value added, together with demands for hard budget accountability by some creditors, banks, and tax collectors, help explain widespread pre-1999 wage arrears (86 billion roubles by September 1998) to workers for months and sometimes for a year![12] Value-subtracting firms, many of which returned to barter, sometimes resorted to paying workers with final output such as lingerie, caskets, or bricks. At other times, private enterprises were forced into arrears because of nonpayment by their creditors or even government. Indeed, the Russian government had larger wage and payment arrears than any single firm did.

(2) Most prices were administered. Since the late 1920s, the Soviets' goal was to turn the terms of trade against peasants to release funds for the state to invest in industry. Farm procurement prices were usually low yet two-tiered, with higher prices for sales in excess of the quota. Yet losing farms have received subsidies (Angresano 1992:393). Since 1991, state and collective farmers have resisted decollectivization and market pricing, with their loss of security.

(3) The Soviets, lacking an integrated price system, found it difficult to strike the "right" balance between carrot (reward) and stick (repression). Wrong wage and price signals do not motivate labor to increase productivity (Kaminski 1992:34).

State farms have paid their workers wages in a way similar to factories. However, state farms, which comprised a rising share (53 percent) of Russia's sown hectares in the late 1980s, lacked incentives to increase productivity. Collective farms, with 44 percent of the sowings and which base income shares on labor day (*trudoden*), have provided little incentive for quality work, as there has been little immediate connection between effort and reward (Gregory and Stuart 1994:292–294).[13]

Yuri Afanasyev (1994:21–27) contends that the gigantic state monopoly, Agroprom, has been the major brake on agricultural output growth, private land ownership, and private farms or voluntary collectives. The powerful agricultural lobby has demanded incredible subsidies from the state, which go primarily to Agroprom.

OVERVALUED ROUBLE

In August 1998, in a matter of days, the rouble lost more than 60 percent of its value, triggering immediate inflation and reduction in real output. Pre-1998 Russia had suffered from a decline in export revenue, especially in manufacturing, from Dutch disease. Rising domestic costs and the fall in world oil prices contributed to capital flight and ultimately, the currency crisis. Russia's debt default on August 17, 1998, was completely unnecessary, according to Manuel Montes and Vladimir Popov

[12] Padma Desai and Todd Idson (2000:5–6) explain wage arrears as an interconnected crisis of state power. Government, unable to collect taxes or accommodating nonpayment by permissive policies, failed to pay suppliers whom, in turn, withheld tax payments. Managers used cash for private enrichment, for essential financial transactions rather than for taxes and wages, or for conversion into foreign exchange to deposit abroad. But a major contributor to arrears was firms' inability to be competitive at world prices.

Why don't workers quit with lengthy arrears? Sometimes they retain present or future noncash benefits they do not wish to forfeit. But worker strikes were futile and uncoordinated.

[13] The private sector had the remaining 3 percent of the sowings.

(1999:39–62). Prior exchange rate adjustment to prevent the real appreciation of the rouble would have avoided the crash.

NEGATIVE REAL INTEREST RATES

Real interest rates in the early 1990s were wildly negative, as inflation, which often exceeded 100 percent yearly, was in excess of the cost of borrowing. Positive real rates of interest would have raised the cost of financing stocks and inventories, making roubles worth more than goods, and would have encouraged the selling of stocks.

CONSUMER SECTORS AS BUFFERS

Under Soviet planning, food and other basic consumer goods comprised buffer sectors, which could be adjusted (usually downward) when inputs to higher priority sectors, such as steel and defense, were scarce. Prices set at less than market-clearing prices meant long lines, shortages, and low quality, dampening personal incentives and worker productivity. It may take years to recover from the Soviet lack of investment in food production.

DISTORTIONS FROM INFLATION

Inflation, repressed under communism, increased more than 112,000-fold from 1990 to 1994! (See Table 19-2.) This strong inflationary momentum resulted from excessive credit creation, driven by credits and subsidies to state enterprises. Subsidies comprised 24.5 percent (import subsidies 17.5 percent) of GDP in 1992. An additional 4.1–23.0 percent of GDP was directed credits by the Central Bank of Russia and the Ministry of Finance to government firms, granted at rates of about 10 percent annually, far below the real (inflation-adjusted) market rate of interest of several hundred percent (Angresano 1992:396–398; IMF 1993:89–91).

Blanchard et al. (1993:18–20) contend that before 1994 the Russian monetary authorities made no effort to stabilize prices, as they realized that the unemployment cost, especially in the military-industrial complex, would have been substantial. "Faced with a difficult choice of pursuing fiscal and monetary restrictions designed to bring inflation down further or saving the national payment system from collapse, the government" and the Central Bank of Russia in 1992–95 and in 1998–99, chose saving the payment system (Popov 1996:15–16). This hyperinflation created perverse incentives and numerous distortions, contributing to devastating effects on output, suppressing savings and investment (especially foreign investment), retarding capital-market development, and contributing to uncertainty (Popov 1996:18).

SOFT BUDGET CONSTRAINTS

During the early 1990s, under declining governmental institutional capacity (Popov 2001:39), firms operated under a **soft budget constraint**, lacking financial penalties when enterprises or projects fail. Although management and worker bonuses and investment expansion were theoretically linked to performance, virtually no firm was penalized for losses. New firm entry was restricted and inefficient firms were rarely closed down; firms lacked the market's **creative destruction**, in which industry's old,

high-cost producers are replaced by new, low-cost enterprises (Schumpeter 1947:81–86). Firms did not fear bankruptcy, as banks continued to lend to losing firms, out of concern for the political power of their managers and professionals, who sometimes influenced planners through gifts and bribes, or were fellow nomenklatura. Indeed, politicized lending by Russia's Central Bank to enterprises about to fail or default was the major contributor to inflation rates of about 1,000 percent yearly in 1992 and 1993. Harvard and Hungarian Academy of Sciences' economist Janos Kornai (1990:23) contended that in Hungary during the early 1990s, firms entered and exited in no relationship to profitability or loss! Russian firms were similar.

Socialism and its legacy can soften the firm's budget limitation in several ways. First, the national or local government grants soft subsidies in response to lobbying or bargaining by influential apparatchiks or officials (with virtually one rouble granted for each rouble lost). Second, the rules for taxation are not uniform, and tax payments, not rigorously enforced, can be reduced by pressure and pleading. Third, banks do not follow uniform principles, loaning to firms in trouble whose mangers complain or failing to insist on full adherence to credit contracts. Fourth, contracts between buyers and sellers are not free. Buyers bargain down administered prices or sellers persuade a ministry to authorize increased prices in response to rising costs, irrespective of production efficiency.

Firms face hard budget constraints where authorities recognize a unit will fail and exit the industry when it incurs continuing losses and financial catastrophe. "Hardness" means serious consequences from a deficit. "Softness" arises from external help to protect the firm from the loss of jobs and the inability to compete against foreign producers, the redistribution of resources to weak and poor enterprise, and guarantees of security and survival to influential enterprises and their managers (Kornai 1992:140–145).

INABILITY TO COLLECT TAXES

One important institutional capability is the capacity to raise revenue and provide basic services. During the Soviet period, the state raised revenue through a turnover taxes (state monopsony buying combined with low purchase prices, especially in agriculture) and foreign trade earning (from state monopolies). After the breakdown of the Union, the growing size of the shadow economy (perhaps one-third of GDP) and the refusal of many firms to pay taxes reduced the revenues essential to provide basic services and support the legitimacy of the state (Popov 1996: 21).

Russia's tax revenue as a percentage of GDP declined substantially from the Soviet period (47.2 percent in 1990) and was low (26.1 percent) in 1995 compared to 49.3 percent in Hungary, 40.3 percent in Estonia, and 42.3 percent in Ukraine, and lower than all OECD countries. Russia joined the ranks of many developing countries lacking the funds to provide health services, law and order, science and technology, protection of the aged and destitute, and other state services. Social expenditure, the financing of health care and education, and defense spending were cut dramatically in the 1990s. But government programs and their cutbacks were not planned rationally, as most programs were kept half-alive, half-financed, and barely working (Popov 1996:21–24).

THE TRON "SAFETY NET"

Enforcing hard budget constraints is difficult because of the Soviet legacy of the "company town." Millar (1994:3–5) maintains that many Soviet/Russian employers provide workers with apartment space, land for a house and to raise vegetables, medical care in clinics and hospitals, schools and specialized advanced education, subsidized cafeterias and buffets, recreational facilities, travel, vacation sanatoria, and food, clothing, and hardware stores, in addition to a job. Russia's welfare system is inextricably linked to the enterprise, which must divest itself of its welfare functions if it is to compete successfully in a market economy. Yet local owners are reluctant to dismiss employees. And enterprises purchased by workers are especially unlikely to divest themselves of these welfare and subsidiary functions.

Adjustment and reform programs are initially likely to hurt the poorest one-third of the population. Russia went from low income inequality under communism to a Gini index of income concentration of 45.6 in 2000 (World Bank 2003i:64–68), higher than the United States and all other high-income OECD countries. In Russia, wage earners, pensioners, and government officials without access to wealth in the newly formed private sector were hurt in the shift to the market, especially with early hyperinflation. To secure support from the poor and working class, adjusting and reforming countries need programs to protect the income and social services of the most vulnerable. In Russia, the decline of the "company town" without replacement institutions meant that many of the poorest, especially elderly on fixed pensions, experienced food shortages, crowded living conditions, and a collapse of health and medical services. Tuberculosis, typhoid fever, and cholera, which had been virtually eliminated, reappeared in the early 1990s for the first time in decades. A transitional country cannot abolish the all-encompassing "company town" without providing replacement institutions to provide a "safety net" for the poor.[14]

THE LACK OF MARKET INSTITUTIONS

Popov (2001:29) contends that the collapse of state and nonstate institutions in the late 1980s to the early 1990s, resulting in chaotic crisis management rather than an organized and manageable transition, was the cause of the magnitude of Russia's contraction. He observes the collapse of institutions

> in the dramatic increase in the share of the shadow economy, in the decline of government revenues as a proportion of GDP; in the inability of the state to deliver basic public goods and an appropriate regulatory framework; in the accumulation of tax, trade, wage, and bank arrears; in the demonetization, "dollarization," and "barterization" of the economy as measured by high and growing money velocity, and in the decline of bank financing as a proportion of GDP; in the poor enforcement of property rights, bankruptcies, contracts, and law and order in general; in increased crime rates; etc. (Popov 2001:33)

[14] China's state-owned enterprises (SOEs) also have served the function of "company town," as indicated in note 17.

Throughout the 1990s and the first decade of the 21st century, Russia's presidents have announced land reform enabling the privatization of farm land. However, people used to the security and wages of state and collective farms resisted privatization, and private farmers failed to receive services that collective farmers enjoyed. Russians can acquire use rights but suffer from imperfections in land property rights (Swinnen and Heinegg 2002:1029–1030) (see Chapters 4 and 7).

THE NEGLECT OF SERVICES

The Soviets, whose ideology denied that services were productive, overindustrialized while neglecting services (trade, finance, and housing). After the collapse of socialism, Russia had to expand the services essential for a modern economy.

THE LACK OF TECHNOLOGICAL PROGRESS

Chapter 3 argued that Soviet growth from the late 1920s through the 1950s from increased inputs such as higher capital formation and labor participation rates were one-time gains that could not be replicated after 1970. To continue growth, the Soviets needed to raise productivity per worker through increased technological change. The Soviets' low total productivity growth was a consequence of the exhaustion of input growth. Extracting old mines was becoming more difficult, as the Soviets had exhausted many natural resources and lacked the improved technology to overcome diminishing returns (Ellman and Kontorovich 1992:8–9).

Motivating innovative activity in centrally managed economies like the Soviet Union is usually difficult. In 1959, Soviet Premier Nikita Khrushchev complained about an unsatisfactory rate of technological change. "In our country some bureaucrats are so used to the old nag that they do not want to change over to a good race horse, for he might tear away on the turn and even spill them out of the sleigh! Therefore, such people will hold on to the old nag's tail with both hands and teeth" (Berliner 1971:585–586, citing *Pravda*, July 2, 1959).

Soviet managers resisted innovation, because effort and resources diverted to it might threaten plan fulfillment. Although kinks in the new technology were being ironed out, managers lost part of their take-home pay, which was often tied to plan targets, or they may have been demoted. When evaluating managers for bonuses and promotions, party officials gave little weight to innovation. Also the tightly planned system had little latitude for servicing and spares for new equipment or for acquiring new resources and suppliers. Furthermore, the prices of new products usually counted for less in computing plan fulfillment than older, standard goods. Finally, introducing new models required extensive testing and negotiations with research institutes as well as approval from official agencies before production is authorized (Berliner 1971:569–597). Managers are opposed to technical innovation. If potential productivity is increased, the firm's continuous production will be interrupted and its future quotas raised. According to the Nobelist Lawrence Klein (2001:76): "Technical change warranted fresh prices that did not appear." The bureaucratic maze hampered innovation and technical change.

THE MILITARY-INDUSTRIAL COMPLEX

The unprecedented peacetime cost of military expenditures and the other costs of being a superpower made it difficult to maintain medical and social services and investment in civilian production. Russia's military industry contributed twice the share of GDP as the United States in the late 1980s (Ellman and Kontorovich 1992:14; *Economist*, December 5, 1992, p. S10).

Afanasyev (1994:23) argues that the military-industrial complex continued to benefit from Russian political conflict after the end of the Cold War. In 1994, Yeltsin ceased funding conversion programs.

ENVIRONMENTAL DEGRADATION

Environmental disruption in the Soviet Union in the 1970s and 1980s was greater than in the United States; energy cost per unit of GNP was much lower in the United States than in the Soviet Union. Damage to the environment was a major cause of the fall in life expectancy (from about 70 in 1978–92 to 65 in 1994–2003, with 59 for males) and infant mortality rates rose in Russia in the 1970s, 1980s, and 1990s, a trend contrary to those in almost every other region of the world. Murray Feshbach and Alfred Friendly Jr. say that the Soviet Union died by ecocide through plunder of rich natural resources and systematic neglect and poisoning of the Soviet people. In 1986, the Chernobyl nuclear power explosion resulted in the exposure of 20 million people to excessive radiation. In Yerevan, Armenia, belching chemical works poisoned and deformed local children (Feshbach and Friendly 1991; *Economist*, April 25, 1992, pp. 99–100; Ellman 1993:1–42; Specter 1995:1, 6). Judith Shapiro (1995:149–178) explains Russia's fall in life expectancy to increased poverty, which reduces strategies for coping with illnesses, and the deterioration of the medical and health-care system.

THE COLLAPSE OF TRADE AMONG COMMUNIST COUNTRIES

The political crises in Poland, 1980–81, and other Eastern European countries in the 1980s, and the effect of Eastern European crises and reforms on Soviet politics and trade made it more difficult for the Soviet Union to survive, let alone develop economically. Russia and Eastern Europe suffered supply disruptions from the collapse of centrally planned input–output links under the Council for Mutual Economic Assistance (COMECON) trading bloc. With COMECON's trade patterns severed, Russia's trade with Eastern Europe fell by more than 50 percent from 1989 to 1990. Analogously, Gosplan's abolition reduced intrarepublic trade in the former Soviet Union from 1991 to 1992 by 46 percent (*Economist*, December 5, 1992, p. S10; Ellman and Kontorovich 1992:6, 18–19). Popov (1996:12) contends, however, that the collapse of inter-COMECON and interrepublican trade was not a result of the breakdown of the Soviet Union but the changes in relative prices, which made it impossible for fuel importing countries to finance their trade deficits with Russia. Popov (2001:32) argues that, by themselves, supply shocks triggered a 40 percent

decline in GDP: from reduced interrepublican trade (10 percent of GDP) and defense expenditures (10 percent of GDP), together with a Keynesian multiplier effect of 2.

INITIAL CONDITIONS, LIBERALIZATION, INSTITUTIONS, AND DEMOCRATIZATION: A SUMMARY

Fjorentina Angjellari's econometric analysis (2003) identifies initial conditions, institutional development, democratization, and liberalization as major variables explaining differences in real GDP growth among 25 transitional countries (5 growing and 20 declining) of the former Soviet Union and East-Central Europe in the 1990s. For Russia, the legacy of the Soviet period – initial conditions in 1991 – include distorted incentives and price signals, the party and state monopoly, inconsistencies under openness and decontrol, distorted information, enterprise monopolies, the lack of scarcity prices, the consumer sectors as buffers, soft budget constraints, the lack of market institutions, the neglect of services, the lack of technological progress, the burden of the military-industrial complex, and a degraded environment. Initial conditions are especially important in explaining Russia's collapse of the immediate post-Soviet period in the early 1990s. Slow progress in liberalization and marketization provides a significantly high explanatory power for regress during both the early and middle periods of the 1990s. Slow institutional development is especially important during the later period of the 1990s. Russia made little progress then in the development of markets, antitrust protection, demands for hard budget constraints, creative destruction of inefficient firms, alternatives to nomenklatura leadership, capacity to raise taxes, development of alternative institutions for health and welfare, institutions to foster technological innovation, development of accurate data sources, and a governmental agency to support environmental protection.

Democratization is important in affecting structural reform (liberalization) and institutional reform (Angjellari 2003). Freedom House (2003a) ranks Russia as "partly free," noting the "powerful oligarchic interests and wide discrepancies in income that have an impact on the rule of law and equal political participation." Earlier, Freedom House (2003b) indicated that "Russia has lost considerable ground in its protection of basic political rights and civil liberties over the last seven years, . . . experience[ing] an overall decline since 1997 in . . . electoral process; civil society; independent media; governance; and constitutional, legislative, and judicial frameworks." Andrea Cornia and Vladimir Popov (2001:17) write of Russia as an "illiberal democracy" (see Chapter 4), whereas the Moscow-based journalist Masha Gessen (2003) characterizes the Russia of President Vladimir Putin (2000–) as a "managed democracy." For William Smirnov, Deputy Head, the Institute of State and Law, Russian Academy of Sciences (2003), Russia, rather than being a "fully-fledged democracy," is an "electrocracy," in which

> [t]he political and business elite isolated themselves from the unwanted part of society. Other stratums became isolated despite their will, mostly because of destitution. Small layers of the elite privatized not only most of the public property, but also

huge chunks of state, justice and legal systems. Regional "czars" adopted own constitutions and decrees.

The lack of democratization and development of civil society hampered market and institutional reform, leaving Russia well behind such rapid reformers as Poland, Slovenia, and Hungary.

The Transition from Socialism to the Market in Poland

Poland's transition from socialism to the market was more successful than Russia's and may have been more successful than any country of the former Soviet Union and East-Central Europe. The Polish success underlines the importance of initial conditions and institutional development. Poland was the earliest transitional country to stop its slide in output, in 1992, and the first to attain pre-transition GDP, in 1996 (Figure 19-2).

Poland's history under socialism, only since World War II, was shorter than that of Russia. Russia's socialism was more centralized and totalitarian than Poland's was. Indeed, Poland had sources of opposition to communism in the Roman Catholic Church, (and after 1980) the Solidarity labor union (led by Lech Walesa), and the intelligentsia.

Since 1970, according to Kazimierz Poznanski (1996:ix), Poland had a gradual disintegration of planning and a parallel reemergence of capitalist markets, changes that made the post-1989 reforms less momentous. Poland's businesses faced fewer government restrictions and fewer demands by bureaucrats for bribes (Raiser 2001:232). Reforms under communism during the 1980s failed to increase productivity and contributed to a "cataclysmic" balance-of-payments crisis, but created market institutions that were further strengthened after 1989. When central planning ended in 1989, prices were decontrolled, a legal system was established to support the decentralized actions of private property owners, and a commercial code, company law, and a system of judicial enforcement of contracts from before World War II were reestablished (Sachs 1993:35–78).

Even if you exclude agriculture, which was never collectivized, in 1989 the private sector share of GDP was about 35 percent (Raiser 2001:232). By 1991, most of the private sector was indigenous new enterprises and expanded private entities rather than state-owned enterprises that were privatized (Poznanski 1996:240). In the first 30 months after mid-1991, the beginning of stabilization, 700,000 new businesses were started. At the end of 1993, half the employment and GDP was in the private sector (Sachs 1993:xii). By 1997, there were 10 legally registered enterprises per 100 persons, close to the Western average, but compared to less than 2 in Russia (Popov 2001:45).

Inflation in 1989, with generous wage indexation and credit expansion, was 638 percent. Deputy Prime Minister Leszek Balcerowicz undertook a plan of macroeconomic stabilization, with a tightening of credit, raising of the discount rate, cessation of cheap credit to industry, devaluation of the zloty, and liberalization of international

trade to provide competition to monopolies as prices were decontrolled (Sachs 1993:44–66).

Poland stabilized monetary policy and the zloty currency in 1989, achieving a convertibility that encouraged trade with Eastern Europe, the Soviet Union, and the West. Prices began to stabilize in 1990–91. Poland reduced the length of transition to world prices, so that the initial depression from changing trade patterns was shorter. Poland's opening of the market to foreign trade, together with the slashing of subsidies, improved domestic efficiency (Sachs 1993).

The social safety net, which included price stabilization, unemployment benefits, job training, health care, and pension guarantees, contributed to greater mass support for reform than in Russia (Sachs 1993). Beginning in 1990, as discussed in Chapter 16, the United States and Western governments, as well as commercial banks, wrote down debt, whereas DCs created a stabilization fund to defend the zloty, allowing Poland a fresh start, despite its external economic crises of the 1980s.

Integration into the European Union in 2004 provided additional incentives and support for market and institutional reforms in Poland, as well as Hungary and the Czech Republic. In 2001, Poland's GDP at PPP was 38 percent of the European Union 15 countries, Hungary's was 51 percent, and Czech Republic 56 percent (Economist 2001). These recently acceding countries, together with the other seven – Slovenia, Slovakia, Estonia, Latvia, Lithuania, Malta, Cyprus – hope that their convergence within the EU will occur as rapidly as that of Greece (1981), Portugal, and Spain (1986).

The Transition to a Market Economy in China

Mao Zedong, a founding member of the Chinese Communist Party, led the guerrilla war against the Chinese Nationalist government from 1927 to victory in 1949. From 1949 to 1976, Mao, the Chair of the Communist Party, was the leader of the People's Republic of China. Mao's ideology stressed prices determined by the state, state or communal ownership of the means of production, international and regional trade and technological self-sufficiency, noneconomic (moral) incentives, "politics" (not economics) in command, egalitarianism, socializing the population toward selflessness, continuing revolution (opposing an encrusted bureaucracy), and development of a holistic communist person. From 1952 to 1966, pragmatists, primarily managers of state organizations and enterprises, bureaucrats, academics, managers, administrators, and party functionaries, vied with Maoists for control of economic decision making. But during the *Cultural Revolution*, from 1966 to 1976, the charismatic Mao and his allies won out, purging moderates from the Central Communist Party (for example, Deng Xiaoping) to workplace committees.

After Mao's death in 1976, the Chinese, led by Deng, recognized that, despite the rapid industrial growth under Mao, imbalances remained from the Cultural Revolution, such as substantial waste in the midst of high investment, too little emphasis on consumer goods, the lack of wage incentives, insufficient technological innovation, too tight control on economic management, the taxing of enterprise profits and a full

subsidy for losses, and too little international economic trade and relations. Economic reform, which began in late 1979, under Deng's leadership, included price decontrol, decentralization, agricultural household responsibility, management responsibility among **state-owned enterprises (SOEs)**, small entrepreneurial activity, and **township and village enterprises (TVEs)**.

Since 1980, China has had virtually the fastest growth in the world (see inside front cover table). To be sure, the Penn economists Robert Summers and Alan Heston (1991:327–368 and CD) indicate "that Chinese growth rates are overstated as they are heavily based on growth in physical output figures rather than deflated expenditure series." Moreover, managers understate capacity and overreport production to superiors to receive the greater reward received by those who meet or exceed plan fulfillment. Despite overreporting and continuing market distortions mentioned below, most economists believe China's growth under market reforms has been rapid but uneven.

As Chapter 3 indicated, China's step-by-step approach during the last two decades of the 20th century contrasted with Russia's more abrupt changes in strategy in the early 1990s. China's reform, which started as "socialism with Chinese characteristics" gradually evolved to a "socialist market economy" in the 1990s. Planning changed correspondingly from compulsory plans to indicative plans, with a planned allocation replaced by the market (Lin, Cai, and Li 2003:139).

AGRICULTURAL REFORMS

During the Maoist era, agricultural growth was slower than industrial growth (see Chapter 7). The state transferred surplus from agriculture to the state by underpricing agricultural products and overpricing industrial products sold to the peasants (Lippit 1987:224). So, whereas in the post-Mao period, foreign trade reforms came first, agricultural reforms had the greatest impact on the Chinese people, concentrated primarily in the countryside.

In reforms beginning in 1979, China decontrolled (and increased) prices for farm commodities, virtually eliminated their compulsory deliveries to the state, reduced multitiered pricing, relaxed interregional farm trade restrictions, encouraged rural markets, allowed direct sales of farm goods to urban consumers, and decollectivized agriculture, instituting individual household management of farm plots under long-term contracts with collectives and allowing farmers to choose cropping patterns and nonfarm activities. The household responsibility system (HRS), which Chinese peasants had previously used in 1956 and 1961–64, shifted production responsibility from a production team, the size of a village, to a household.[15] From 1977 to 1984, China's growth in food output per capita, 4.6 percent yearly, was even outstripped by its growth in oilseed, livestock, and cotton output. Indeed, gross agricultural output grew 9 percent yearly during the period. China reversed its pre-1979 dependence on imported grains, exporting corn, other coarse grains, and soybeans (as well as raw

[15] For Joseph Chai (2003:237), although "the HRS did not involve formal divestiture of collectively owned assets, it did lead to a de facto privatization of Chinese agriculture."

cotton), that competed with exports from the U.S. Midwest and South, especially to Japan. These remarkable gains were achieved without increased farm inputs except for chemical fertilizer (Nafziger 1985:366–92: U.S. Department of Agriculture 1986; World Bank 1986a:104–106; U.S. Department of Agriculture 1988; Lichtenstein 1991:60–61).

The Brown University economist Louis Putterman (1993) shows that technical efficiency in Chinese agriculture fell between 1952 and 1978, but increased from 1978 to 1984, becoming the major source of growth. Decollectivization, the household responsibility system, the increased link of reward to output, and modest price decontrol during the reform period increased resource productivity. Work monitoring and incentives improved, agriculture was diversified, and families allocated more labor to highly remunerative noncrop (or even nonagricultural) activities.

After 1984, agricultural growth decelerated so much that Minister of Agriculture He Kang indicated in 1989 that the "situation in agricultural production is grim" (Lichtenstein 1991:61). First, most rural areas had already captured onetime gains from household accountability. Second, in the late 1980s, the government reduced its massive subsidies, which had increased sixfold and expanded the expenditures of state revenues on agriculture from 5 percent in 1978 to 20 percent in 1984, straining government finances. This reduction in subsidies decreased the procurement price the state paid farmers. Third, in the mid-1980s, many farmers awoke to profitable opportunities in rural (township and village) enterprises, both in industry and trade. In 1984, reforms had allowed interprovincial trade, private ownership of capital, access to urban markets, hiring of wage labor, and subcontracting, all of which gave greater scope to private and collective nonstate rural enterprises. As employment and sown hectares in crops declined in the 1980s, farmers experienced diseconomies of small-scale production. Fourth, farmers, based on previous volatility and an uncertain future, feared a reversal in land tenure system, becoming reluctant to invest in agriculture and undertake innovation. Fifth, the rural banking infrastructure was underdeveloped. Government lending by the Agricultural Bank of China, under the control of local party officials, was politicized so that few loans were available at market interest rates for flourishing households. Sixth, since in the 1970s government had distributed rights to communal land in fragmented plots on the basis of household size rather than farm management ability, few highly-productive farmers had the opportunity to expand (Hardt and Kaufman 1991:ix–xiv; Lichtenstein 1991:60–64; Putterman 1993; Fewsmith 1994:153–154).

Aggregate data showed that agricultural productivity grew rapidly in the 1990s. However, Carter, Chen, and Chu (2003:53–71), using farm household surveys, show that China's farm 1990s' gains were exaggerated due to "data aggregation biases and [lack of] reliability of China's national agricultural production statistics."

The Organization for Economic Cooperation and Development (2002:59) indicates that, "with the exception of grains, the production, distribution, and marketing of crops and livestock products are free from significant government intervention." Trade liberalization, from China's accession to the WTO, is likely to increase pressure for further domestic agricultural policy reform.

China had a 1998 population density of 10.2 persons per hectare of arable land, less than Japan and Korea, but about twice that of the European Union and about seven times that of the United States. China's agricultural comparative advantage is in "labour-intensive crops such as fruits and vegetables and a disadvantage in . . . land-extensive crops such as grains and oilseeds" (OECD 2002:62).

In 2003, 61 percent of China lived in rural areas, in part a legacy of the Maoist era when migration to urban areas was discouraged. However, agriculture's share in China's exports has been falling steadily since 1980, and agriculture's share in imports has increased. Globalization and structural shifts with economic growth are accelerating the migration of surplus farm labor to urban areas, where China has a comparative advantage. A major effect of liberalization is internal adjustment costs as farmers face competition from other regions (OECD 2002:60–63).

TOWNSHIP AND VILLAGE ENTERPRISES (TVEs)

In the 1980s, TVEs, organized as cooperatives, produced 60–70 percent of rural output. TVEs enjoyed cheap production factors, primarily cheap labor (with no lifetime employment guarantees as in SOEs), but also startup capital from the collective accumulation, banks, and credit cooperation, and free (sometimes almost unlimited) land. Their cheap products catered to the market, giving TVEs advantage over other sectors. The private sector had not yet been accepted ideologically and politically, and SOEs had not yet been reformed. Moreover, TVE ownership by the community meant that business and government functions overlapped, and TVEs did not bear any burden imposed by government. TVEs were flexible, eventually undertaking contracts or leasing arrangements with other entities; organized as joint-stock cooperatives, limited liability companies, shareholding companies, conglomerates, foreign joint ventures, or conglomerates; or, in a few instances, even being privatized. TVE production helped correct price distortions, and pushed reform forward (Lin, Cai, and Li 2003), outstripping state-owned enterprises in productivity (Jefferson 1999:168). In 1996, collective-owned enterprises –TVEs, the primary form, and urban – comprised 39 percent of industrial output, a growing share since 1985 (Jefferson and Rawski 1999b:27). TVEs behaved similarly to labor-managed enterprise (see Chapter 18), sharing surpluses with workers (Pitt and Putterman 1999:211).

THE INDIVIDUAL ECONOMY

Reform also included small entrepreneurial activity, what the Chinese call the individual economy. One precursor of these individual enterprises was the cooperatively run enterprises, such as TVEs, which required far less capital per worker than state-owned enterprises. After 1976, another trigger to urban reform was dealing with the urban unemployment caused by the return to cities of youths "sent down" to learn from peasants in the countryside during the Cultural Revolution. These youths could not be absorbed in state enterprises, already overstocked with underemployed workers. Therefore, especially after 1984, the state allowed these youths to set themselves up in businesses as individuals or as members of urban collective enterprises. They opened small restaurants, set up repair shops and other retail outlets, or became pedicab

operators, increasing substantially the convenience of urban life (Lippit 1987:201–19). The income was often higher, though the prestige and security were lower, than state-sector jobs. Furthermore, farmers coming to the city to sell their produce expanded the quantity and improved the quality of urban services, especially after 1984 (Perkins 1986:39–61). Overall, China's privately self-employed in cities and towns (primarily in services, commerce, handicrafts, and catering) grew from 150,000 in 1978 to roughly 5–10 million in 1988, increasing industrial output and soaking up underemployed labor (Ignatius 1988:10). In 1996, individual-owned firms accounted for more than 80 percent of the eight million enterprises in China, but less than 16 percent of industrial output (Jefferson and Rawski 1999b:23–27).[16]

INDUSTRIAL REFORMS

Mao's emphasis on self-reliance gave license to provincial protectionism. As provinces became more self-sufficient, their demand for other provinces' surpluses decreased, compelling potential surplus provinces to divert additional resources to self-reliance. After 1979, one of the post-Maoist leadership's major contributions to growth was the substantial gain to specialization from attacks on regional protectionism (Lyons 1987:237, 278).

Earlier in this chapter, we discussed determinants of the performance of public enterprises in LDCs. State-owned enterprises rather than private firms are the keys to China's urban reforms. After reforms were first introduced in the late 1970s, urban reforms entailed built-in contradictions, as market forces threatened the power and expertise of bureaucrats, who were trained to run a Soviet-style command system. Indeed, initially SOE reform in China was more about effective state control than about profitability or privatization. Moreover, SOEs did not increase efficiency when reforms were first introduced.

Early problems with reform. The reform instituted a **management responsibility system**, in which an enterprise manager's task was to be carefully defined and performance was to determine managers' and workers' pay. Reforms were to give enterprise management considerable autonomy to choose suppliers, hire and fire labor, set prices, raise capital, and contract with foreigners. Management was supposed to have responsibility for the success or failure of the enterprise. The initiative and decisions were to be centered in producing units rather than in government administration. Under this system, taxes on enterprise bonuses at more than a certain level replaced the profits and losses the state absorbed. But, as of the mid-1980s, only a fraction of managers of industrial enterprises opted for the responsibility system.

Economists identify several problems with China's industrial reform. Rewarding producers with higher pay for higher productivity requires an increase in consumer goods, especially food. And with reduced investment, growth must rely on technical

[16] Individual-owned enterprises, by Chinese definition, employ no more than seven workers. The figure here defines the individual economy more broadly, including firms with eight or more employed, a minority of the total.

innovation and increased efficiency. Although the early reform period emphasized worker authority in selecting managers, this selection was deemphasized when it increasingly conflicted with the professionalization and responsibility of managers (Lippit 1987:209–216; Lichtenstein 1991:48).

Moreover, in China's central planning system, the planning commission and the People's Bank made most decisions, a power that could not be taken away at one stroke. The planning commission set targets on an annual basis for the amount of output required in each industry and the inputs that would be required to achieve that output. The planners conveyed these targets to the planning commissions and eventually to individual enterprises, which recommended changes based on local conditions. However, in practice, large SOEs were managed in the first 10 years after Mao very much like they were during the Maoist period. Industrial reforms did not have much effect on this sector. Initially, when the reform decentralized decision making, it merely replaced central restrictions with local and regional restrictions (Perkins 1986:52–53; Hardt and Kaufman 1991:xiii).

Another major problem was fragmented administrative control, numerous overlapping authorities for project approval, and multiple levels of controls at different levels of government, what the Chinese call too many mothers-in-law. In 1983, the Qingdao Forging Machinery Plant, a state enterprise, was responsible to the national Ministry of the Machine Industry, the city materials board, and the county for material supplies, to the municipal machine industry office for plant production, to the county planning agency for output value, to relevant county agencies for supplies from the plant, to two separate county agencies for personnel, and to the county committee for party matters, which was immersed in implementing policies (Guangliang 1987:303–304).

Thus, planning was not integrated or coherent, and enterprises were not treated consistently concerning targets. Investment decisions were bureaucratized and politicized. Moreover, administrative agencies lacked enough information about enterprises and commodities to make good decisions. Despite the management responsibility system, in practice management was still centralized and rigid, with firm managers having limited control over performance. Enterprise managers had few incentives, because the state gave managers production plans and designated product recipients, so there was little room for initiative or innovation (Barnett and Clough 1986:54–57; Lee 1986:45–71; Lippit 1987:215–216; Riskin 1987:352–353; Tidrick and Chen 1987; Lichtenstein 1991:73).

One redeeming feature was that plans were not as rigid in practice as in theory; otherwise the Chinese economy would have ground to a halt. Although bargaining and trading made the system more flexible, these arrangements required the enterprise manager to spend much of his or her time negotiating special deals with the planning bureaucracy and other managers. The system placed a premium on "back door" deals, rather than organizing labor and other inputs to use more efficiently. The manager whose only skill was saving money was of little use in achieving success, because he or she could always borrow money cheaply from the People's Bank or take funds from the enterprise's net income.

The key to getting enterprise managers to respond to market signals was for them to pay more attention to making profits rather than simply expanding output. Managers concentrated on profits when they were able to keep a larger and more predictable portion of them and use them for bonuses for them and their workers, rather than turning profits over to the state budget (Perkins 1986:54).

Profits can only guide enterprise behavior efficiently if they are determined by prices reflecting true relative economic scarcity. When prices were set incorrectly, as in China, even in the years immediately after the 1979 reforms, they gave the wrong signal, spurring enterprises to produce too little of what was short and too much of what was in surplus. For example, wrong market signals meant that enterprise managers tried to purchase vast imports in excess of the foreign exchange available. Managers who accumulated more foreign exchange and other inputs could then more easily meet success targets.

For the market to have meaning, enterprises must be able to buy productive inputs and sell products on the market. But prices usually did not show where resources could best be put to use, thus providing false signals to enterprises. In many instances, enterprises were still not allowed to retain profits for capital; indeed, much capital was still allocated administratively rather than by interest payment. Moreover, in 1980, more than 100 industrial products were subject to compulsory planning.

For some time after 1979, prices were arbitrary and distorted and changed only incrementally throughout the system. Setting multiple prices by regions did not correspond to the cost of distances traveled. Distorted prices meant that profits were not linked to supply and demand. Enterprises were spurred to produce overpriced goods regardless of the market. Scarce goods that were priced cheaply become even scarcer. Furthermore, the Chinese, like the Russians, restricted entry and exit of firms, lacking the benefit of creative destruction.

For increasing market forces to result in higher levels of efficiency, enterprises must compete with each other rather than have monopoly control of particular markets. To be sure, enterprises had more freedom buying and selling, and collective enterprises sometimes competed with state enterprises. Yet as long as central planners allocated key inputs administratively, competition was limited, at least for intermediate products.

Additionally, the Chinese authorities took time to establish a labor market, thus thwarting smooth labor adjustments to changes in demand. Traditionally, workers hired by state enterprises had an "iron rice bowl," meaning that they could not be fired. During the Cultural Revolution, wages were effectively frozen and bonuses frowned on, so material incentives for improved performance were lacking. Moreover, because China lacked adequate safety nets, management was reluctant to fire labor, and substituted employment for productivity objectives. Management promulgating a system of freer hiring and firing threatened the morale and solidarity workers felt with the "iron rice bowl." Moreover, during the Maoist period, workers became increasingly disaffected so that the Chinese authorities had to compensate by becoming more repressive to maintain labor discipline. But during economic reform, managers were subject to substantial pressure from workers, so that managers'

concern for profits was driven by efforts to increase worker benefits, which affected managerial security (Lichtenstein 1991:73; Perkins 1991:160–166).

Enterprise managers had little control over paying or hiring labor and little in firing unproductive workers. Furthermore, the variety and amount of supplies available to a firm did not bear much relationship to output targets. Firms had little scope to search the market for the cheapest combination of input costs. Factor prices were highly distorted.

In reality, during the early period of reform, firms had a soft budget constraint. Although management and worker bonuses were nominally linked to profits and other targets, virtually no enterprise lost bonuses for not meeting targets, since firms were able to negotiate during the output year to reduce quotas. Enterprises took excessive risks because of this soft constraint. Moreover, enterprise managers bargained for profit targets, which sometimes were changed retroactively. Furthermore, governmental authorities failed to shift from a centrally directed finance system to a tax-based system; Beijing gave tax breaks to the more troubled and powerful enterprises (Prime 1991:167–185; Leung 1994:A13).

Also firms received inducements for production yet might not be able to respond because managers lacked meaningful discretionary authority. Planning was difficult, as firm norms were excessive and changed too frequently. The norms encouraged output of high-value commodities that used a high proportion of materials and delinked production from marketing.

Industrial reform was supposed to permit bankruptcy, but in practice the state still subsidized losses. Although banking reform required investment financed by bank loans on an economic basis rather than state budgetary grants, half the new capital construction in the 1980s was financed by state grants. Communist Party and local government leaders interfered with the People's Bank of China, forcing it to renegotiate loans on more favorable terms, especially to the politically influential. A typical procedure was to use the profits of successful firms to infuse with life the failing firms, which received a substantial share of the budget in the 1980s. Inflationary pressures were high during the late 1980s, because of politicized lending and price monitoring and widespread wage pressures. These pressures were in response to a fear of worker unrest and agitation from being squeezed by increasing food prices and from an increased craving for consumer goods such as televisions, radios, tape recorders, bicycles, refrigerators, washing machines, furniture, jewelry, and Western-style homes (Lichtenstein 1991:13–14, 48, 69; Naughton 1991:135–159; Prybyla 1991:209–225; *Beijing Review*, March 28, 1994, p. 4; Leung 1994:A11).

Chinese industry in the first 10 years of the reform still suffered from the classic Soviet planning approach – using the preceding year's achievement as the minimum target for the current year, known by the Chinese as "whipping the fast ox." Near the end of the year, enterprises overfulfilling quotas deliberately slowed down operations in order not to increase targets too much for the subsequent year. From 1979 to 1980, Beijing instituted profit retention and rewards for fulfilling profits and other performance indicators in several pilot firms. But the experiment was suspended, as the growth of profits and other performance indicators slowed down to keep future

targets down, and local governments objected to the high administrative costs and reduced control associated with enterprise profit retention.

Moreover, most enterprises did not receive their quotas until after the beginning of the planning year. Because of dependence on administrative decisions and the cooperation of other firms in receiving inputs, enterprises kept excessive levels of inventory.

As the state set few variety, grade, or style targets, the enterprise had little incentive to produce the variety of goods demanded by the market. Price incentives also were lacking for quality improvement.

Later improvement in reform outcomes. However, by the late 1980s and 1990s, some changes spurred more managers to adopt reforms and improve market response. The experience of partial reform, especially during the wrenching industrial recession of 1980–81, increased the promarket sentiments of many planners and enterprise managers, who saw how smaller and private enterprises took advantage of opportunities offered by the market (Jefferson and Rawski 1999a:84). At the same time, the emergence of a buyers' market, from increases in the supply of light industry and consumer goods, increased incentives to improve industrial performance and quality (Tidrick 1987:201).

A key management reform, gradually implemented in the 1980s, was to expand the right of the firm to an increasing share of residual profits. Despite remnants of planning, intrusive regulation, and administrative approval processes, by the 1990s, as bureaucratic constraints lessened, profit, not plan fulfillment, became the SOE's prime motivator (Jefferson, Ping, and Zhao 1999:52–53; Jefferson and Rawski 1999a:67; Jefferson, Rawski, and Yuxin 1999:96–97). The government reduced the number of industrial products subject to compulsory planning from 131 in 1980 to 14 in 1988, while also reducing fixed prices on foodstuffs and inputs (Lichtenstein 1991:47), thus improving microeconomic allocation efficiency. The slowdown in revenue growth during the 1980s hardened budget constraints, tilting officials and bankers toward "sending enterprises to market" (Jefferson and Rawski 1999a:80). Furthermore, a growing number of SOEs have reorganized themselves into joint stock companies, intensifying competitive pressures on those remaining in the state sector (Jefferson and Rawski 1999b:38).

The increasing right to sell products outside the plan was a major stimulus to innovation in production and marketing. SOEs, responding to competitive pressures, increased productivity enhancements, R&D, new product development, and innovation. Evidence of increased competition was that **industrial concentration ratios**, the proportion of an industry's (e.g., beer, cement, machine tools, steel) output produced by the three largest firms in the industry, was lower in China than in either Japan or the United States (Jefferson, Rawski, and Yuxin 1999:95; Jefferson and Rawski 1999a:67; Jefferson and Rawski 1999b:35–36).

Contract responsibility enables most firms to retain all or a progressively increasing share of above-quota profits. In the 1990s and early years of the 21st century, directors and managers increased their decision-making authority, less constrained by state

interference. The association of increased profits and retained earnings with wages and bonuses served as an incentive for the firm to increase productivity. The result of increased labor incentives, labor market reforms and greater enterprise autonomy was an explosive increase in labor productivity from 1978 to 1996, especially in the 1990s (Jefferson, Ping, and Zhao 1999:48–63; Jefferson, Rawski, and Yuxin 1999:95; Jefferson, Singh, Hu, and Benzhou 1999:171–172).

SOE reform in the early years of the 21st century. Problems remain. Profit retention rates, and thus incentives, for SOEs vary substantially. SOEs' total factor productivity is only half that of the private and TVE sectors. Although prices are increasingly determined by enterprise discretion, where there is state price control, managers widely engage in rent seeking activities (Jefferson 1999:168; Jefferson, Ping, and Zhao 1999:52–53; 60–61; Jefferson, Singh, Junling, and Shouqing 1999:137, 143–145).

Many of China's SOEs, similar to those in Russia, serve the function of "company town," thus being burdened with social service, pension, unemployment insurance, health, education, and other welfare expenses (Jefferson and Rawski 1999b:32–33).[17] Moreover, like Russia, Chinese banks have "built up a mountain of non-performing loans (NPLs) by lavishing cash on value-destroying state firms while starving deserving private borrowers" (Economist 2004:S18).

The World Bank views the lack of property rights as the problem in state-owned enterprises and TVEs (Jefferson, Mai, and Zhao 1999:107–125). Public enterprises gradually devolved ownership and control to provincial and local governments, a move contributing to the "development of a property rights market" (Jefferson and Rawski 1999b:29–30). A clear assignment of property rights "improve[s] the incentive to monitor and curtail rent-seeking behavior." Is this possible without a change in ownership rights? According to the Bank, empirical studies indicate that a reassignment of property rights results in measurable gains in efficiency (Jefferson, Mai, and Zhao 1999:111).

However, can China change ownership rights without experiencing the colossal waste from "insider privatization" and the creation of a class of billionaire oligarchs that Russia underwent? Grzegorz Kolodko (2000:98, 158), Poland's Finance Minister, 1994–97, thinks that Poland, Czech Republic, and Russia privatized too quickly, and that transitional countries should rather emphasize speed in commercialization and improvement of the corporate governance of public enterprises.

Other economists express optimism that over the years, private enterprises, which have bought shares of SOEs, and collective enterprises have grown faster than SOEs, and will eventually dominate the loss-ridden public enterprises. Indeed, the share of industrial output by state-owned enterprises fell from 80 percent in 1978 to

[17] The fact that a majority of SOEs lose money threatens the survival of the schools dependent on these enterprises, for which the government has not been willing to provide specific educational funds. Roughly 5 percent of primary and secondary students attend schools run by unprofitable SOEs (Zhang and Liu 1995). In the early 1990s, 93 percent of employees of industrial SOEs were provided with housing (Jefferson and Rawski 1999b:39).

55 percent in 1990 to 43 percent in 1994 to 28 percent in 1996 (Jefferson and Rawski 1994:47–70; Economist 1995b:33–34; Jefferson and Rawski 1999b:27; Jefferson, Rawski, and Yuxin 1999:90). Still, in 2004, SOEs accounted for 35 percent of urban employment and received half of bank loans. The largest producers of coal, steel, power equipment, and other key goods are SOEs. Virtually all of heavy industry and much of technology were in the hands of SOEs. Moreover, a majority of SOEs, an increase in a 20-year period, were losing money in 2004 (Jefferson and Rawski 1999b:37; Economist 2004c:S14).

Still the support for reform is so pervasive in China that its rulers are not likely to reverse the industrial and other domestic reforms significantly. But China faces many problems related to the reforms, including excessive credit to SOEs, the collapse of the "iron rice bowl" for workers in firms, the increased migration of the rural poor to the cities, and potentially rising worker and peasant disaffection.

Peter Nolan points out that, despite protection, subsidized loans, access to foreign technology through joint ventures, and privileged access to the stock market, China lacks truly competitive global firms. Thus, for Nolan, from a global perspective, China's "industrial policy of the past two decades must be judged a failure" (Economist 2004c:S15).

POVERTY AND INEQUALITY

Mao Zedong's rhetoric emphasized egalitarianism and building up the "weakest link." In practice, its income inequality was in a range comparable to many other Asian countries, such as Bangladesh and Sri Lanka. Although China's rural and urban inequalities were low, Mao's urban bias policies widened rural–urban inequality so that it was higher than India's (World Bank 1983a:Vol. 1, 84–94).

Deng Xiaoping's slogan "To get rich is glorious" was a repudiation of Mao's emphasis (Lichtenstein 1991:136). John Knight and Lina Song (2001:118) find that urban inequality rose from 1988 to 1995, primarily in areas where economic reform increased income and widened inequality in coastal regions and in the nonstate sector. During the same period, rural inequality increased largely because of "the increased importance of wage income and individual business income in total rural income" (ibid., p. 117). Overall income inequality has increased substantially during the years of reform so that "China in the 1980s and 1990s became one of the more unequal countries in the region and among developing countries generally" (Riskin, Renwei, and Shi 2001:3). The Gini coefficient of household income per capita rose from 38 to 45 percent from 1988 to 1995 (Knight and Song 2001:84).

However, because of rapid growth, the rural population in poverty fell from 33 percent in 1978 to 11 percent in 1984, while urban poverty declined from 1.9 percent in 1981 to 0.3 percent in 1984. From 1984 to the early 1990s, poverty reduction stopped in rural China and drastically slowed in urban China, despite rapid growth (World Bank 1992a; Khan and Riskin 2001:52–54). Wu and Perlott (2004) show that income inequality continually increased from 1985 to 2001. Inequality increased within both rural and urban areas, and also rose from shifts of population from rural

to urban areas, but the largest contributor to the high national inequality (Gini = 0.415 in 2001) was the widening rural–urban gap.

For Zhao Renwei, there are important policy implications for reversing the increase in income inequality and end of significant poverty reduction in the late 1980s and 1990s. First, China needs to pay more attention to rural economic development. Second, the country needs a social security policy to reduce poverty and inequality from unemployment, sickness, and old age. Third, the country needs to increase investment in human capital, especially basic education. Fourth, China should use personal income taxes to redistribute income (Renwei 2001:25–43). At present, only a small percentage of urban workers pay income tax. Incomes need to be more transparent and the central state needs to improve its tax-collecting capacity (Gustafsson and Shi 2001:48). Fifth, government needs to reduce subsidies and benefits for high-income groups in urban areas. Finally, Renwei (2001:40–42) wants greater labor mobility, especially for rural people to migrate to jobs in urban areas.

BANKING REFORM

China had no capital markets before the 1978 reforms; firms, primarily public enterprises, financed investment from retained profits, interest-free budgetary grants, and loans from state-owned banks. China had a monobank system typical of centrally planned economies (Lardy 1998:60–139; Goldstein 1998:31). China's banks, "as appendages of government, . . . are massive, bureaucratic and imbedded with an intensely political culture," in which bank managers are rewarded on party loyalty (Economist 2004c:S18). SOEs and their reporting are of poor quality. Years of politically motivated lending increased bank bad debts to 145 percent of GDP, so that nonperforming loans were 30 percent of deposits. With China's economic reform and subsequent opening to the international economy, the banking system grew in complexity, with the central Bank of China, national and regional commercial banks, an agricultural bank, construction bank, investment bank, housing savings banks, consumer banks, banks specializing in foreign exchange, and nonbank financial institutions, such as urban credit cooperatives, trust and investment companies, finance companies for enterprise groups, financial leasing companies, securities companies, and credit rating companies (Lardy 1998:60–76). Still, Nicholas Lardy, senior fellow at Washington's Institute of International Economics, thinks it is too early for bailing out banks, as they will soon return to an unsustainable debt position unless they can prove "that they can operate on a commercial basis" (Economist 2004c:S18). As China moves to international convertibility of its currency, the yuan, interest rates will need to be competitive to avoid substantial pressure on the balance of payments and yuan from depositors buying higher-yielding foreign assets (Lardy 1998:77–139).

INCREASING INTERNATIONAL TRADE AND EXCHANGE

During the 1960s and early 1970s, the Chinese stressed self-sufficiency. In 1960, amid an ideological dispute, the Soviets canceled contracts and pulled out materials, spare parts, and blueprints from aid projects and joint ventures in China, leaving

bridges and buildings half built. In 1977, after Mao's death, the Chinese leadership, recognizing how costly technological self-reliance had been, opened the door toward the world market. To change, China would now not only stress basic studies and the development and application of science and technology but also learn foreign technology through sending students to foreign academic institutions, absorb foreign production techniques suitable to China's conditions, and raise the skills of Chinese workers, technicians, and managers (Beijing Review 1982:20–21). In 2001, China joined the World Trade Organization (WTO), which applies to countries where market prices are the rule.

In 1979–80, China first created *special economic zones* (SEZs), export processing zones, for foreigners to set up enterprises, hire labor, and import duty-free goods for processing and reexporting. Many foreign investors in SEZs, and later in other cities or development zones with comparable status, enjoyed preferential tax rates, reduced tariffs, flexible labor and wage policies, more modern infrastructure, and less bureaucracy than elsewhere in China.

In 2001, of the $209.4 billion foreign direct investment (FDI) that flowed to LDCs, the largest share, $46.8 billion, flowed to China (also $23.8 billion to Hong Kong, China) (UNCTAD 2003:7). Moreover, in 2002, surveys by the World Bank's Multilateral Investment Guarantee Agency and A. T. Kearney found that China had overtaken the United States as the top ranking country in FDI confidence (World Bank 2003e:102). Foreign investors included overseas Chinese, especially from Hong Kong. Although a part of China since 1997, Hong Kong receives the same preferences as foreign investment. Because of special inducements for foreigners, sometimes domestic Chinese, who wanted to start a new industrial venture disguised the enterprise by creating a front for Hong Kong ("foreign") investors. Although China does not recognize a separate government in Taiwan, its citizens are heavy investors, especially in electronics, taking advantage of language affinity and cheap labor, usually by entering circuitously through Hong Kong or Macao. The *Asia Times* (Keliher and Meer 2003) estimates that Taiwanese firms in China are responsible for 40 percent of China's exports. Most Hong Kong and Chinese overseas investors were legitimate investors, comprising the lion's share of foreign capital in China. Indeed, the overseas Chinese in China were more experienced and enterprising than overseas Indians[18] or overseas members of other Asian nations. China also benefited from the fact that Western and Japanese investors feared being excluded from what comprises about 12 percent of world GNI PPP (World Bank 2004b:252–253) and will eventually be the largest market in the world.

Eighty-five percent of FDI flows in 1998 were to relatively prosperous coastal areas, with the largest amount in Guangdong Province, near Hong Kong (OECD 2001:7). FDI flows account for about 15 percent of China's total capital formation, one of the highest ratios among LDCs. In 1995, FDI controlled 47 percent of China's

[18] FDI inflows to India in 2001 were $3.4 billion, ranking behind not only China but also Mexico, Brazil, South Africa, Poland, Czech Republic, and Thailand among LDCs (UNCTAD 2003:7). Moreover, the surveys reported by the World Bank (2003a:102) indicated that whereas China ranked 1st in FDI confidence, the next ranking LDC was Mexico in 9th place, and India ranked only 15th.

manufacturing exports and 53 percent of investment in electronics. FDI firms are much more profitable than domestic firms, especially SOEs (Huang 2001:147–155). Moreover, FDI enterprises, and, to a lesser extent, domestic private firms and TVEs, have been increasing export shares relative to SOEs, as the major determinants of export success are firm decision-making autonomy and exposure to freer domestic market (Perkins 1998:242, 260).

To what extent is China facing some of the hazards that modern sectors or enclaves within a dual economy encountered during colonialism and the postcolonial period of the 1960s and 1970s: a lack of linkages to other enterprises within the domestic economy (Crane 1991:841–857; Endean 1991:741–769). For Jefferson and Rawski (1999b:40), this is not likely. Indeed, foreign firms, especially "joint ventures have strongly influenced the process of industrial reform by bringing . . . access to offshore pools of funds and intimate knowledge of advanced technology, market intelligence, and management systems, into partnership with Chinese enterprises. [These innovations have] begun to ripple through China's business community through supplier networks, competitive pressures, and the rotation of Chinese personnel to and from foreign-linked enterprises."

A scenario similar to the end of Japan's miracle (Chapter 3) could contribute to decelerating growth in China. China, like Japan, not only faces massive bad debts owed to banks but also may have exhausted gains from internal and external economies of scale, learning by doing, and gains from the "advantages of backwardness,"[19] adopting technology cheaply from more advanced economies. An unknown includes the ability of China to respond to inequality, worker and peasant discontent, and demands for national and ethnic self-determination.

Lessons for LDCs from the Russian, Polish, and Chinese Transitions to the Market

Many third-world countries of Africa, Asia, and Latin America can learn from Russia's, Poland's, and China's efforts at liberalization and adjustment. Russia's state socialism, more developed and deep-seated than Poland's and China's, required more substantial institutional change for successful transition to the market. As Alec Nove (1983:168), a student of socialist economies, put it, "To change everything at once is impossible, but partial change creates contradictions and inconsistencies."

Russia's legacies of consumer-goods neglect, gigantimania and industrial concentration, resistance to technological innovation, shoddy quality, quota disincentives, and information concealment were more institutionalized than Poland's. For example, Poland had less industrial concentration, had made some progress in the 1980s toward privatization, and provided more competition to state-owned monopolies after reform than Russia. Other difficulties Russia encountered in its reform were

[19] Compared to Russia, China suffered fewer distortions in the stock of fixed capital, because, being at a much earlier stage of development, it had little capital and did not require much in agriculture (Popov 2001:32). Later, China may have less flexibility in modifying economic strategies.

lack of incentives, false signals from prices, nonprice capital allocation, monopoly pricing after price decontrol, a soft budget constraint for enterprises, a torn "safety net" for workers and the elderly, opposition to or capture of liberalization benefits by vested bureaucratic interests, neglect of institutional and legal changes essential to expedite a market economy, and severed trade links. Poland moved toward demonopolization before or concurrently with price control, began organizing a capital and labor market, had less politicized lending to inefficient or failing firms, and provided more support to the economic welfare of the poor than Russia. Although both countries encountered opposition from the bureaucracy, resistance in Poland was less substantial, perhaps because the material levels of living of wage earners did not decline as substantially as in Russia.

Peter Nolan (1995) has two explanations for the success of China's economic growth and reforms compared to Russia's: (1) China's pursuit of economic reforms while avoiding political liberalization (similar to other East Asian fast-growing economies) and (2) China's step-by-step approach to economic reform, rejecting "shock therapy," especially as practiced by the IMF and World Bank. Nolan shows how Russia's efforts at *glasnost* (openness) and democratization destroyed the old state apparatus while failing to construct an effective successor state, thus engendering an economic collapse.

John Ross (1994:19–28) provides several rules for liberalization policy, based on the experiences of China, Russia, and Eastern Europe. First, decontrol prices, marketize, and privatize where you have competitive sectors, such as China's agricultural sector. Second, maintain controlled prices where you have monopolistic and oligopolistic sectors, as in China's industrial sector. Russia made the mistake of decontrolling prices, marketizing, and privatizing industrial products, thus increasing these prices for consumers and the competitive sectors. Russia's industrial firms reduced output and raised prices to maximize profits. Third, only decontrol industrial prices when you can provide international competition, as in the case of Poland's industry, or when government can break up existing enterprises or provide enough domestic competition so that firms will not restrict output. In Russia's case, the instability of the rouble hampered export expansion so that foreign exchange was not adequate to import from foreigners who might have competed with domestic enterprise. Fourth, unlike Russia (and to a lesser extent China) in the early 1990s, use monetary and fiscal policies to set an interest rate to ration credit and to dampen inflation. Fifth, as in Poland in 1989, liberalize foreign exchange rates by ceasing to interfere in the market. However, you may need to restrict imports as their pent-up demand could create a balance-of-payments problem. Sixth, provide a safety net for the poor and unemployed to reduce the resistance of the population opposed to reform. In the early 1990s, Poland and China had limited success, and Russia virtually no success, in achieving the sixth rule.

In agriculture, China decollectivized much more successfully than Russia, which stifled private initiative and marketization. In industry, China encountered many of the same stubborn interests opposing liberalization as Russia did. Although China has suffered from its share of corruption, it has resisted the asset stripping and favorable

buyouts of state industrial enterprises for apparatchiks under the guise of privatization that Russia has faced. Still, China's path toward reform by "touching stones while walking across a river" could be imperiled by instability during the early decades of the 21st century. Third-world countries should not follow the path of Russia or China to reform, although these countries can learn lessons from Russia and China. Each developing country needs to find its own path toward adjustment and development.

TERMS TO REVIEW

- adjustment
- balance-of-payments equilibrium
- conditionality
- creative destruction
- economic rents
- European Bank for Reconstruction and Development (EBRD)
- expenditure-reducing policies
- expenditure-switching policies
- external balance
- Gosplan
- individual economy
- internal balance
- management responsibility system
- material balance planning
- net material product (NMP)
- *nomenklatura* system
- parastatals
- privatization
- public enterprises
- public goods.
- "shock therapy"
- soft budget constraint
- state-owned enterprises (SOEs)
- structuralists
- township and village enterprises (TVEs) (China)

QUESTIONS TO DISCUSS

1. Indicate and discuss the major World Bank and IMF programs for ameliorating LDC external equilibria and debt problems. Analyze the effectiveness of World Bank and IMF approaches to the LDC external crisis. What changed roles, if any, would you recommend for the World Bank and IMF in attaining LDC adjustment and reducing the LDC debt crisis?
2. Discuss and evaluate the views of the critics of World Bank and IMF approaches to LDC adjustment.
3. Discuss the optimal sequence of adjustment and reforms by LDCs facing external crises. Is this sequence consistent with orthodox strategies advocated by the World Bank and IMF?
4. Discuss the concepts of internal and external balances, and the adjustments LDCs should make to attain both balances.
5. Under what conditions, if any, would you advise LDCs to expand the share of their state-owned sector? Under what conditions, if any, would you advise LDCs to reduce SOEs?
6. Compare the performance of private and public sectors in LDCs.
7. Should the state use public enterprises to redistribute income?

8. What can LDCs do to improve the performance of their private sector?
9. What is privatization? How successful have attempts at privatization in LDCs been? What are some of the pitfalls of privatization?
10. Assess the efficacy of MNC–SOE joint ventures in LDCs.
11. Should LDCs put more emphasis on privatization or socialization, or should they continue the status quo?
12. What were the main reasons for the collapse of state socialism in the Soviet Union?
13. Barthlomiej Kaminski indicates that state socialism is nonreformable. Evaluate this contention.
14. Evaluate the effectiveness of the "shock therapy"/"big bang" approach and the alternative approach.
15. Jeffrey Sachs contends: "I blame Russia's problems on communist ineptitude and corruption, the utter degradation of the old administrative structure, and the thoughtless reaction of the West to the growing financial plight of the republics." Discuss and evaluate this view.
16. The economist Thomas E. Weisskopf states: "The outlook for revitalization of Russia's economy is bleak. Only an alternative to shock therapy can assure that the Russian economy will be successfully restructured and revitalized. . . . It would . . . require a much larger role for government in shaping the social and economic environment than radical free marketeers are willing to contemplate. Such an alternative approach would be more likely to obtain democratic support than shock therapy and therefore the Russian government would be more likely to implement it successfully." Discuss and evaluate this view.
17. Discuss China's urban reform, agricultural reform, and other reforms after 1978–79, including some of the problems associated with the reforms and the impact that the reforms had on economic performance.
18. Do you agree with economists who argue that Chinese economic strategies are characterized by continuity and evolution, not abrupt change, especially when compared to those in Russia and other former communist countries undertaking reforms in the 1990s?
19. Discuss the problems China has had with the reform of its SOEs.
20. What lessons can LDCs learn from Russia's collapse of state socialism and economic reform?
21. What lessons can LDCs learn from China's transition from socialism to a market economy?

GUIDE TO READINGS

Bruno and Easterly (1998) examine inflation and its effect on adjustment. Stiglitz (2002b), Mosley, Harrigan, and Toye (1991:Vol. 1), FAO (1991:115–149), and Cramer and Weeks (2002:43–61) criticize IMF adjustment policies. Vera (2000) partly blames the IMF and World Bank's conditionality strictness for Latin America's staggering debt and stagnation during the 1980s and 1990s. Aguilar (1997)

recommends that other lending agencies rely less on IMF certification for assessing LDCs' borrowing.

Cook and Kirkpatrick (2003), Baer (2003), Bennell (2003), Chai (2003), Parker (2003), Megginson and Netter (2003) analyze privatization, with implications for LDCs.

Cornia and Popov (2001) examine comparative transitional experience. Dudrick et al. (2003) examine the effect of the transition on the poor.

Goldman (2003) and Reddaway and Glinski (2001) are highly critical of Russia's policies under Yeltsin. Montes and Popov (1999) focus on the background for the collapse of the rouble in 1998. Goldman (1996:20–47), Grossman (1993), and Handelman (1994) analyze the Russian mafia. Schleifer and Treisman (2004: 20–38) contend that Russia's economic collapse since 1991 has been overexaggerated. Gregory and Stuart (2001) are experienced analysts of the Russian economy.

Poznanski (1996) examines Poland's transition as continuous from reform during the communist period, 1970–1989. Sachs (1993) focuses on Poland's jump to a market economy. Kolodko (2000) uses his experience as Polish finance minister to criticize the approach of Russia's Yeltsin, including foreign advisors Sachs and Schleifer for a "shock therapy" strategy.

Kornai, Maskin, and Roland (2003:1095–1136) explain reasons for the soft budget constraint, whereas Kornai (1992) analyzes the damage done by this constraint.

Jefferson and Singh (1999) analyze the Chinese industrial reform from a number of perspectives. Other excellent books on the Chinese economy include Lin, Cai, and Li (2003), Riskin, Renwei, and Shi (2001), Preston and Haacke (2003), Lardy (1998), and Lichtenstein (1991). The *Economist* (2004c) has a survey on the Chinese economy.

Articles in the *Handbook of Development Economics* on stabilization and adjustment include Behrman and Srinavasan (1995c) on stabilization, structural adjustment, and growth; and Corbo and Fischer (1995) on stabilization, structural adjustment, and policy reform.

Glossary

absolute poverty An income below that which secures the bare essentials of food, clothing, and shelter.

absorptive capacity The ability of an economy to profitably utilize additional capital. This ability depends on the availability of complementary factors.

accelerator The tendency for investment to change as aggregate output changes, thus accelerating the effect of the multiplier.

Adelman–Morris theory of growth and inequality A theory to explain why economic development in a dual economy with modern and traditional sectors corresponds to income inequality tracing a Kuznets (inverted-U) curve.

adjusted net savings Gross savings plus educational expenditure minus capital consumption, environmental degradation, and resource depletion (World Bank 2003d).

adjustment or structural adjustment Policies of privatization, deregulation, wage and price decontrol, trade and financial liberalization and reforms in agriculture, industry, energy, and education intended to increase the economy's efficiency, macroeconomic balance, and growth. In context, "adjustment" may be shorthand for stabilization and adjustment programs, especially those under the auspices of the International Monetary Fund and World Bank.

adverse selection Asymmetric information resulting in poor loans by the financial system, which lacks the capability of making judgments about investment opportunities. This asymmetry is characterized by lenders having poor information about potential returns of and risks associated with investment projects and potential bad credit risks being most eager to borrow.

aid Official development assistance (ODA), which includes nonmilitary grants or loans made at concessional financial terms (at least a 25 percent grant element) by official agencies.

antiglobalization Opposition to free international trade and capital movements to protect domestic jobs and income and macroeconomic discretion.

apartheid A racially separate and discriminatory economy and society, as in white-ruled South Africa. There, apartheid, which had existed for decades, was legally institutionalized from 1948 to 1994, the beginning of constitutional democracy.

appropriate technology Technology that fits LDC factor proportions (relative price of capital and labor) and culture.

Asian borderless economy The Japanese-led international division of knowledge and function, in which more sophisticated activities are allocated to Japan and the Asian tigers, and less sophisticated production and assembly for other Asian economies.

Asian tigers The economically most advanced Asian economies, including South Korea, Taiwan (China-Taipei), Singapore, and Hong Kong (China), which have had rapid economic growth since 1975.

Association of South East Asian Nations (ASEAN) An organization of 10 nations whose purposes include promoting economic growth and integration. The members – Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar (Burma), the Philippines, Singapore, Thailand, and Vietnam – have formed AFTA, the ASEAN Free Trade Area.

backward linkages Links to enterprises that sell inputs to a given firm. These linkages are part of the way society assesses an investment project, considering not only returns to an industrial project but also the effect of the project on the social profitability of another sector.

balance of payments equilibrium An international balance on the goods and services balance over the business cycle, with no undue inflation, unemployment, tariffs, and exchange controls.

balance of trade Exports minus imports of goods.

balanced growth A synchronized application of capital to a wide range of different industries (Nurkse).

basic-needs approach A development strategy that shifts attention from maximizing output to meeting and attaining a minimal standard of nutrition, primary education, health, sanitation, water supply, and housing for the population.

basis point One-hundredth of a percentage point, used to indicate interest rates.

big push See *balanced growth*.

bilateral aid Aid given directly by one country to another.

biodiversity Genetic and species diversity in plants and animals that provides humankind with more choices for scientific experimentation, medicines, and grain varieties, and more protection against plant enemies.

black market premium The extent to which the illegal or unofficial market price of a good or currency exceeds the official market price. For example, if Ethiopia's official exchange rate is Birr9 = US$1 and the black market rate is Birr18 = US$1, then the premium is 100 percent (18–9/9 = 1.00).

bourgeoisie The economic class between the aristocracy and the proletariat (industrial working class). For the Marxist, this includes the capitalist class, which is antithetical to the proletariat.

Bretton Woods' institutions The international monetary system and multilateral development and reconstruction lending agency established by World War II allies at Bretton Woods, New Hampshire, in 1944. Specifically, it refers to two institutions created there, the International Monetary Fund and the World Bank.

Bretton Woods' system The international monetary system from the early 1950s to the early 1970s in which nations adhered to a fixed exchange rate until forced by international economic imbalances to make a one-off change in the exchange rate.

buffer stock An international arrangement by commodity producer governments to provide for funds and storage to accumulate goods when prices are low and sell when prices are high to smooth fluctuations.

capability The effective freedom of a person to achieve states of beings and doings, or a vector of functionings, such as being adequately nourished, avoiding premature mortality, appearing in public without shame, being happy, and being free. This freedom to attain, rather than the functionings themselves, is the primary goal, meaning that capability does not correlate closely to attainment, such as GNP per capita. See the discussion of Amartya Sen's approach to poverty and well-being in Chapter 6.

capital flight Private capital outflows by a country's residents and institutions.

capital goods Produced goods used as inputs in further production. Examples include

plant, equipment, machinery, buildings, and inventories.

capital import An inflow of capital from abroad enabling a country to invest in excess of savings.

capital market The resource market in which households and firms supply their savings for interest or potential profits to firms to buy capital goods.

capitalism The economic system dominant in the West since the breakup of feudalism from the 15th to the 18th centuries. Fundamental to this system are the relations between private owners and workers. The means of production are privately held, and legally free but capital-less workers sell their labor to employers. Private individuals operating for profit make production decisions.

capital stock The sum total of previous gross capital investments minus physical capital consumption, natural capital depletion, and environmental capital damage (World Bank 2003c). Also the total amount of physical goods at a particular time that have been produced for use in the production of other goods and services.

cartel An organization of producers that agree to limit output to raise prices and profits.

chaebol Financial conglomerates or cliques that have dominated industry and banking in South Korea. These combines are characterized by the interlocking and cross-subsidization of industrial enterprises and commercial banks.

civil society Institutions independent of the state – private and nongovernmental entities such as labor unions, religious organizations, educational and scientific communities, and the media.

classical theory Analysis based on the works of late-18th- and 19th-century English economists such as Adam Smith, David Ricardo, and Thomas Malthus who believed in natural law, government noninterference, and diminishing returns from population growth.

Coase's theorem The proposition that states that when property rights are well defined and legally enforceable and transactions costs are not prohibitive, participants will organize their transactions voluntarily to achieve efficient (mutually advantageous) outcomes.

coefficient of variation A statistical measure of the deviation of a variable from its mean, viz., the ratio of standard deviation to the mean for the normal (bell-shaped) distribution.

commanding heights For socialist countries, the major sectors of the economy, including heavy industry, metallurgy, military industries, mining, fuel, transport, banking, and foreign trade. Socialist economies tend to identify these key sectors for control by the state.

commodity terms of trade The price index of exports divided by the price index of imports. For example, if export prices increase 10 percent and import prices 22 percent, the terms of trade would drop 10 percent, as $1.10/1.22 = 0.90$.

common market Regional integration that removes trade barriers among members, retains common trade barriers against nonmembers, and, unlike a customs union, allows free labor and capital movement among member states.

common property resources An unpaid or open access resource vulnerable to the "tragedy of the commons" (see later) without institutions to limit resource use.

comparative advantage The theory formulated by the classical economists Adam Smith and David Ricardo that states that world (that is, two-country) welfare is greatest when each country exports products whose comparative costs are lower at home than abroad and imports goods whose comparative costs are lower abroad than at home.

comparison-resistant services Services, such as health care, education, and government administration, which comprise a substantial portion of most countries' expenditure and increase the difficulty of determining relative income across nations.

complete economic and monetary union Regional integration that removes trade barriers among members, retains common trade barriers against nonmembers, allows free labor and capital movement among member states, unifies members' monetary and fiscal policies, and unlike an economic union, attains political union. An example of this union is the states of the United States beginning in 1789.

concessional funds Grants or loans with a substantial (at least 25 percent) grant component. See also *aid*.

conditional convergence Convergence with control variables, such as population growth, education, and government spending, held constant.

conditionality Conditions that the International Monetary Fund (IMF) or World Bank sets for lending. For example, the IMF usually requires that the borrower adopt adjustment policies to attain a viable balance of payments position.

consumer price index (CPI) The index of the average price of a basket of goods and services consumed by a representative household or consumer.

contested markets Competition among a few evenly matched firms and their potential competitors without attaining perfect competition.

contingent valuation The use of questionnaires from sample surveys to elicit the willingness of respondents to pay for a hypothetical program, such as a public good.

convergence A narrowing of the relative income per-capita differentials between poor and rich countries. This is consistent with the assumption of similar technology from one economy to another and the neoclassical presumption of diminishing returns to capital as an economy develops.

corruption Misuse of entrusted power for private gain (Transparency International 2003).

cost–push inflation Increase in the overall price level caused by an increase in costs in an imperfectly competitive market.

crawling peg An exchange-rate system in which a home currency depreciates (or appreciates) continuously, rather than abruptly, against foreign currencies. Monetary authorities limit the exchange-rate change per period.

creative destruction The use of market competition to improve efficiency by the entry of new low-cost producers to replace old high-cost producers, who exit the market through failure or bankruptcy.

crude birth rate The number of births per 1,000.

crude death rate The number of deaths per 1,000.

currency board Central bank that issues domestic currency at a fixed rate to foreign currency.

currency mismatch A situation in which the currency denomination of a country's (or sector's) assets differs from that of its liabilities such that its net worth is sensitive to changes in the exchange rate (Goldstein 2002).

current account The income component of the international balance of payments, referring to sales and purchases of goods and services separate from the transfer of capital or assets.

current expenditures Noncapital expenditures in a given year, including recurrent costs, that is, those occurring periodically.

customs union Regional integration that removes trade barriers among members, but, unlike a free trade area, retains common trade barriers against nonmembers.

Davos A Swiss resort that frequently hosts the annual World Economic Forum, a

celebration of globalization among the world's economic elites.

debt exchanges Exchanges in which the creditor swaps the debt instrument for equity, bonds, or some other obligation in the domestic currency of the debtor.

debt-for-nature swap An exchange in which a DC or a DC nongovernmental organization (such as an environmental organization) repays part of the debt of an LDC if that country promotes the environment, for example, by preserving the tropical rainforest or establishing a national park.

Debt Reduction Facility A scheme created by the World Bank in 1989 to help IDA-eligible countries with a credible debt-management program to buy back their commercial debt instruments at the current market price, substantially discounted on the secondary market.

debt service The interest and principal payments due in a given year on external debt.

debt-service ratio The ratio of annual debt service to exports of goods and services.

demand–pull inflation Increase in the overall price level resulting from consumer, business, and government demand for goods and services in excess of an economy's capacity to produce.

democratization The process of moving from authoritarian to democratic rule, in which the sovereign power of the state resides in the people as a whole, who exercise power directly or by officers elected by them.

demographic transition The period of rapid population growth between a preindustrial, stable population characterized by high birth and death rates and a later, modern, stable population marked by low fertility and mortality.

dependency ratio The ratio of the nonworking population (under 15 years old and over 64 years old) to the working-age population (ages 15 to 64).

dependency theory The theory that contends that subordination of the peripheral economies of Latin America, Asia, and Africa to the industrialized economies of the West contributes to the underdevelopment of these peripheral economies.

developed countries (DCs) Same as *high-income countries*.

direct investment Real investments in factories, capital goods, land, and inventories where both capital and management are involved and the investor retains control over the invested capital. A large portion of direct investment is by multinational corporations.

direct taxes Taxes levied directly on individuals or businesses, such as property, wealth, inheritance, and personal and corporate income taxes.

***dirigiste* debate** Debate among development economists about the role of the LDC state in promoting macroeconomic stability, national planning, and the public sector.

disability-adjusted life years (DALYs) Number of years lost of a healthy life through premature death, disease, and other disability, expressed per 1,000 population between the ages of 15 and 60 years.

discount rate Interest rate used to allocate investment.

disguised unemployment See zero *marginal revenue productivity of labor*.

divergence A widening of the relative income per capita differentials between poor and rich countries. See *convergence*

Doha Development Round Trade negotiations (2001–) under the auspices of the World Trade Organization.

dollarization A situation in which residents of a country extensively use foreign currency (not just dollars) alongside or instead of the domestic currency (Schuler 2004).

dual economies These economies, most low-income countries, and some middle-income countries, that have a traditional, peasant agricultural sector, producing primarily

for family or village subsistence, with little or no reproducible capital, using technologies handed down for generation, and having a low marginal productivity of labor, alongside a modern sector. In contrast to the traditional sector, the labor-intensive peasant agriculture (together with semisubsistence agriculture, petty trade, and cottage industry) is a capital-intensive enclave consisting of modern manufacturing and processing operations, mineral extraction, and plantation agriculture, which produces for the market, uses reproducible capital and new technology, and hires labor commercially.

Dutch disease A pathology resulting from the way a booming resource export retards the growth of other sectors through unfavorable effects on the foreign-exchange rate and the costs of factors of production.

economic growth The rate of growth in gross product (or income) per capita.

economic integration A grouping of nations that reduces or abolishes barriers to trade and resource movements among member countries.

economic liberalism The economic ideology that advocates freedom from the state's economic restraint.

economic rent Payment above the minimum essential to attract the resource to the market.

economic union Regional integration that removes trade barriers among members, retains common trade barriers against nonmembers, allows free labor and capital movement among member states, and, unlike a common market, unifies members' monetary and fiscal policies.

economies in transition The former communist economies of East-Central European and the former Soviet Union that are making transitions to market economies.

effective rate of protection Protection provided to an industry as a percentage of value-added by production factors at a processing stage. The measure considers the effects of tariffs on both inputs and outputs.

elasticity of demand See *price elasticity of demand*.

elasticity of propoor growth The percentage increase in the consumption growth of the poor/percentage increase in the consumption growth of the nonpoor. If the elasticity is greater than 1, then the process is propoor, if less than 1 antipoor (Bhalla 2002).

elasticity of supply Percentage change in quantity supplied/percentage change in price.

elasticity of the poverty gap with regard to the Gini index The percentage change of the proportion of the population in poverty/percentage change in the Gini coefficient.

elastic tax Tax in which the percentage change in taxation divided by the percentage change in GNP exceeds one.

endogenous Originating internally or explained within the model.

Engel's law A proposition indicating that as income increases, the proportion of income spent on manufactured goods rises and the proportion spent on primary products falls.

entitlement The set of alternative commodity bundles that a person can command in a society using the totality of rights and opportunities that he or she possesses (Sen).

entrepreneurship The production resource that coordinates labor, capital, natural resources, and technology.

entropy A thermodynamic measure of the amount of energy dissipated in disorder and thus unavailable for human use (Georgescu-Roegen).

euro The common currency used since 1999 (banknotes since 2002) by European Union members France, Germany, Italy, Spain, Portugal, Greece, Austria, Finland, Ireland, Belgium, the Netherlands, and Luxembourg.

eurocurrency Currency deposited by companies and governments in banks outside their own countries, usually currency of a non-European country deposited in Europe.

Eurodollars Dollars deposited in banks outside the United States.

European Bank for Reconstruction and Development (EBRD) A development bank, based in London, that loans funds to governments of East and Central Europe and the former Soviet Union.

European Union accession countries Countries joining the European Union in 2004 including Poland, Hungary, Czech Republic, Slovakia, Estonia, Latvia, Lithuania, Slovenia (making the transition from communism to capitalism), Malta, and Cyprus. The prospect of membership, together with E.U. assistance, has encouraged these countries to undertake trade, capital-account, legal, financial, enterprise, and other socioeconomic reforms.

exchange control A government or central bank limitation of citizens' purchase of foreign currency for foreign capital, materials, consumer goods, and travel.

exchange rate See *price of foreign exchange*.

exit option The leaving of a group or withdrawal of membership when dissatisfied with a group or organization yet unable to effect change. A specific manifestation of "exit" is the decision not to buy a product of a firm when dissatisfied, leading to a shift to that of another and thus perhaps spurring the management of the firm to search for ways to correct whatever faults have led to an exit. In economics, the term was coined by Albert Hirschman.

exogenous External to the system.

expected income In the Harris–Todaro model, the product of the wage and the probability of finding a job. The product becomes relevant in urban areas where this probability is less than 100 percent.

expenditure-reducing policies Contractionary monetary and fiscal policies, especially the cutting of government spending.

expenditure-switching policies Switching spending from foreign to domestic policies, viz., through devaluing the local currency.

export commodity concentration ratio The ratio of the three to four leading merchandise exports as a percentage of total merchandise exports.

export purchasing power Same as income terms of trade.

external balance An international balance or equilibrium. See *balance of payments equilibrium*.

external diseconomies See *negative externalities*.

external economies Cost advantages rendered free by one producer to another.

external (international) deficit Exports less than imports of goods and services.

factor price distortions Situations in which factors of production are paid prices that do not reflect their competitive market price because of institutions, state interference, or monopolistic or oligopolistic restraints on market supply and demand. Distortions in LDCs typically include unsuitable technology, subsidized capital and foreign exchange costs, and labor paid more than its market price because of labor unions or political pressure.

factor proportions theory The theory of Heckscher and Ohlin that shows that a nation gains from trade by exporting the commodity whose production requires the country's relatively abundant (and cheap) factor of production and importing the good whose production requires the intensive use of the relatively scarce factor.

factors of production Resources or inputs required to produce a good or serve. Basic factors include land, labor, and capital.

failed state A state that provides virtually no public goods or services to its citizens.

family-planning programs Government-run schemes to provide propaganda and contraceptives to regulate or reduce the number of births.

Fel'dman model The Soviet model (1928) that emphasized rapid investment in machines to make machines. Long-run economic growth was a function of the fraction of investment in the capital goods industry.

financial intermediaries Institutions that serve as middlemen between savers and investors; examples are commercial banks, savings banks, community savings societies, development banks, stock and bond markets, mutual funds, social security, pension and provident funds, insurance funds, and government debt instruments.

financial liberalization Eliminating or reducing government intervention into financial markets, allowing supply and demand to determine interest rates, foreign exchange rates, and other financial prices.

financial repression Government intervention into financial markets that constrain investment or distort interest rates, foreign exchange rates, and other financial prices, usually through setting interest rates or prices of foreign exchange below market-determined rates.

fiscal incentives Tax concessions or subsidies used to attract investment by business, often from abroad.

fiscal policy Government policies regarding taxes and expenditures.

floating exchange rates Exchange rates that are left free to be determined by supply and demand on the free market without intervention by a country's monetary authorities.

flow A variable with a time dimension, viz., so much per unit of time.

foodgrain deficit Foodgrain imports as a percentage of foodgrain consumption.

foreign exchange rate See *price of foreign exchange*.

formal sector The part of the LDC urban economy with large-scale firms with more than ten workers, paying competitive wages, with formally acquired skills, capital intensity, and entry barriers.

forward linkages Links to units that buy output from a given firm. These linkages are part of the way society assesses an investment project, considering not only returns to an industrial project but also the effect of the project on the social profitability of another sector.

free riding A problem intrinsic to people enjoying the benefits of public goods even when they do not pay for them.

free trade area Regional integration that removes trade barriers among members, but in which each country retains its own barriers against nonmembers.

fungible Aid that is of a nature that is substitutable, interchangeable, or in which the aid can be replaced by another expenditure that is equally satisfactory.

GDP (gross domestic product) A measure of the total output of goods and services in terms of income earned within a country's boundaries.

GDP deflator The ratio of nominal GDP to real GDP multiplied by 100, which serves as an overall measure of prices.

Gender-related Development Index (GDI) The U.N. Development Program's alternative measure of welfare that combines the Human Development Index (HDI) with female shares of earned income, the life expectancy of women relative to men, and a weighted average of female literacy and schooling relative to those of males.

General Agreements on Tariffs and Trade (GATT) A multilateral organization of market economies founded in 1947 that administered rules of conduct in international trade through 1995, when WTO became all-encompassing. WTO maintains continuity with GATT, whose precedents WTO recognizes.

Genuine Progress Indicator (GPI) An alternative measure of welfare to GDP that adjusts gross product for resource depletion and environmental degradation.

Gini coefficient An index of inequality or concentration (where perfect equality is 0 and perfect inequality, i.e., one has everything, is 1) used to measure, say, the distribution of income or land holdings. Gini is the area between the perfect equality (45 degree) line and the Lorenz curve (Chapter 6) divided by the total area of the line to the right of the perfect equality right. The higher the Gini, the higher the income inequality; the lower the Gini, the lower the income inequality.

globalization The world's spreading modernization and growing economic integration in the late 20th and early 21st century.

global production networks (GPNs) A value-added chain or division of labor of manufacturing output, organized by multinational corporations, usually with DC headquarters, in which production is broken into discrete stages in a number of countries, with each performed in countries best suited for stages. Export production by developing countries in GPNs usually contains a high proportion of duty-free imported intermediates.

global public goods Goods characterized by nonrivalry in consumption, so that consuming nations cannot exclude other nations from their benefits, and nonexclusion in consumption, so that consuming nations cannot exclude other nations from enjoying their benefits. Examples include the atmosphere, biosphere, high-yielding grains from the Green Revolution, and polio vaccination.

GNI (gross national income) Same as *GNP*.

GNP (gross national product) A measure of total output of goods and services in terms of income earned by a country's residents or institutions.

GNP deflator The ratio of nominal GNP to real GNP multiplied by 100, which serves as an overall measure of prices.

Golden Age of Capitalist Growth The period, 1950–73, when world economic growth per capita was faster than for any period of comparable length.

Grameen Bank A microlending bank, established in Bangladesh in 1988, which lends to peer borrowing groups of, say, five or so people with joint liability. The group approves loans to other members as a substitute for the bank's screening process. Failure to repay by any member jeopardizes the group's access to future credit.

green markets Markets modified by government action to affect prices through taxes and subsidies to correct market failure and distortions pertaining to the environment. The object of government interference is to bring prices closer to those that would maximize social net benefits.

Green Revolution The increased productivity of agriculture, especially in Asia, from the development of high-yielding varieties of grain and accompanying inputs, infrastructure, pricing policies, research, extension, and technology.

green taxes Taxes on fossil fuel that ensure that emitters bear the costs that they transmit to third parties.

greenhouse gases Carbon dioxide (from coal, oil, natural gas, and deforestation), methane, nitrous oxide, water vapor, and chlorofluorocarbons injected into the atmosphere. These gases, the concentration of which is increased through vehicle and factory energy use and other human activity, change temperature, climate, and ocean circulation, and thus affect economic activity.

group lending A scheme in which a bank lends to peer borrowing groups of, say, five or so people with joint liability. The group approves loans to other members as a substitute for the bank's screening

process. Failure to repay by any member jeopardizes the group's access to future credit. See a prominent example, the *Grameen Bank*.

Group of Eight (G-8) Group of Seven plus Russia.

Group of Seven (G-7) The major industrialized countries – the United States, Canada, Japan, the United Kingdom, Germany, France, and Italy. Often G-7 meetings include a representative of the European Union. In 2004, China sent its finance minister and central bank governor to G-7 meetings.

Group of 10 (G-10) The dominant 11 members of the 55-member Bank for International Settlements – Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, Switzerland, the United Kingdom, and the United States. The finance ministers and central bank governors of the 11 often meet to discuss cooperation among central banks and other agencies to achieve financial stability.

Group of 77 The coalition of LDCs established in 1964, which now numbers 133, that articulates and promotes LDC collective economic interests in the United Nations and promotes economic and technical cooperation among LDCs.

Harris–Todaro model A model that uses expected income (wage times the probability of employment) to explain why rural to urban migration in LDCs continues despite high urban unemployment.

***hawala* system** An informal banking or money transfer system for migrants from or within the Middle East and North Africa to avoid substantial transactions costs in commercial banks or other financial institutions. *Hawala* means "transfer" in Arabic.

head-count approach to poverty Measuring poverty by the percentage of a population in poverty as complementary to income-gap and Gini measures.

Heckscher–Ohlin theorem See *factor proportions theory*.

hedging Buying or selling on the forward (for example, 90-day) foreign-exchange market to fix future rates for conversion from one currency to another.

high-income countries (HICs) Countries with a per-capita GNI of $9,000 or more in 2002, according to the World Bank. The margin of error is substantial and the boundary between HICs and LDCs rises each year with inflation.

HIPC (highly-indebted poor countries') initiative A World Bank/IMF initiative, 1997–2004, to provide debt relief through grants from the sale of IMF gold and from Paris Club rescheduling and writeoffs. To qualify, these countries were to improve governance and maintain sound macroeconomic policies.

historical materialism Marx's dialectical theory that explains the collapse of each historical stage by changes in the relationships between ruling and oppressed classes.

household responsibility system The system introduced in China in 1979 in which local authorities allocated long-term user rights to agricultural land to individual households.

human capital Investment expenditures in the education, training, research, and health of people that increase their income or productive capacity.

Human Development Index (HDI) The U.N. Development Program's alternative measure of welfare to GNI or GDP, which combines indices of literacy and schooling, life expectancy, and GDP per capita in purchasing power parity (PPP) U.S. dollars.

hyperinflation An extraordinarily rapid increase in the overall price level, for example, according to Sachs and Larrain (1993:729–739), inflation at least 20 percent monthly (or 792 percent annually).

ICOR (incremental capital output ratio) The amount of additional capital required to increase output by one unit. The inverse of the ratio of increase in output to investment, which, together with the

investment rate, explains the rate of economic growth.

IDA-eligible countries Countries eligible for International Development Association concessional lending.

import substitutes Domestic production replacing imports through tariffs and quotas.

impossibility theorem The contention that, given the U.S. and rich countries' substantial appropriation of the world's nonrenewable resources and net primary productivity, the entire world's population cannot enjoy U.S. consumption levels (Herman Daly).

impossible trinity The achievement of all three goals – stable exchange rates, free capital mobility, and monetary autonomy – by national economic policy makers (Reisen 1993).

income elasticity of demand Percentage change in quantity demanded/percentage change in income.

income-gap approach to poverty Measuring poverty by the additional income needed to bring the poor up to the level of the poverty line, as complementary to the head-count and Gini measures.

incomes policy Direct attempts by government to control prices and wages to reduce inflation.

income terms of trade The value index of exports divided by the price index of imports.

indicative plan A plan in a mixed or capitalist economy, which states expectations, aspirations, and intentions, but falls short of authorization. This type of plan may include economic forecasts, helping private decision makers, policies favorable to the private sector, how to raise money and recruit personnel, and a list of proposed public expenditures usually authorized by the annual budget.

indirect taxes Taxes levied on producers, such as import, export, turnover, sales, value-added, and excise taxes. The burden of these taxes can be passed on to consumers depending on the elasticities of demand and supply.

individual economy The small entrepreneurial sector in China.

indivisibilities Discontinuities in the productivity of infrastructure and the response of investment decisions to demand growth that necessitate, in the view of Rosenstein-Rodan, a synchronized application of large amounts of capital to all major sectors of an underdeveloped economy.

industrial concentration ratio The proportion of an industry's or product's output produced by, say, the three largest firms in the industry.

industrial countries See *high-income countries*; also the same as DCs.

infant industry arguments Arguments for protection for newly industrializing countries based on advantages they gain from increasing returns to scale, external economies, and technological borrowing by latecomers.

inflation An increase in the overall price level.

inflationary expectations The way in which anticipation of inflation affects the behavior of workers, consumers, and businesspeople.

inflation targeting A country's central bank setting of a publicly announced numerical target (or sequence) for overall price increases.

inflation tax Inflationary financing through the government treasury expanding credit or printing money so that the government can raise funds in excess of tax revenues. This financing imposes a tax on the holders of money.

informal sector The part of the LDC urban economy with small-scale individual, family, or other firms with less than 10 workers, with wages below official minimum wages, with labor-intensive production and few capital, skills, and entry barriers. The sector

is often not recorded in official statistics. In many low-income countries, it provides a major source of urban employment.

information and communications technology (ICT) The technology that connects computers, communication linkages, and other equipment for collecting, producing, processing, storing, managing, manufacturing, and information spreading purposes (Mohan 2004).

infrastructure Social overhead capital such as that in transport, communication, power, and technical research that increases the productivity of investment in directly productive activities.

innovation The embodiment in commercial practice of some new idea or invention (Schumpeter).

input–output table A table that describes the interrelationships among major industries and sectors, wages and salaries, surplus, investment, saving, consumption, government spending, taxes, exports, imports, the balance of payments, and national income. When divided horizontally, the table shows how the output of each industry is distributed among other industries and sectors of the economy. When divided vertically, the table shows the inputs to each industry from other industries and sectors.

institutions "The rules of the game of a society composed of the formal rules (constitutions, statute and common law, regulations), the informal constraints (norms, conventions, and internally devised codes of conduct) and the enforcement characteristics of each. Together they define the way the game is played" (North 1997:2).

institutional wage An infinitely elastic wage in a less-developed economy resulting from government setting a minimum wage or from labor union pressure.

intellectual property rights (IPR) World Trade Organization provided rights to protection of patents, trademarks, copyrights, biotechnological products, and other innovative products.

intermediate technology Techniques somewhere between the most internationally advanced capital-intensive processes and the LDCs ' traditional instruments.

internal balance Balance or equilibrium in the domestic macroeconomy, including full employment and price stability.

international balance of merchandise trade See *balance of trade*.

international balance of payments statement A systematic summary of all economic and financial transactions between one country and the rest of the world (usually on an annual basis).

international balance on goods and services Exports minus imports of goods and services.

International Development Association (IDA) The concessional window of the World Bank, primarily for low-income countries.

international economic order This order includes all economic relations and institutions, both formal and informal, that link people living in different nations. These economic institutions include international agencies that lend capital, provide short-term credit, and administer international trade rules. Economic relations include bilateral and multilateral trade, aid, banking services, currency rates, capital movements, and technological transfers.

International Monetary Fund (IMF) The agency created in 1944 at Bretton Woods, New Hampshire, charged with providing short-term credit for countries' international balance of payments deficits.

international network of agricultural research centers Research centers on LDC principal food commodities and climate zones, including the Consultative Group on International Agricultural Research (CGIAR), supported by the World Bank, the UN Development Program, the Ford Foundation, the Rockefeller Foundation, the U.S. Agency for International Development, and agencies of other governments,

in partnership with numerous National Agricultural Research Systems and nongovernmental organizations (NGOs).

inverted U-shaped curve The shape of the curve that frequently relates income inequality to the level of economic development. As economic development proceeds, income inequality may follow an upside-down U, first increasing (from low- to middle-income countries), and then decreasing (from middle- to high-income countries).

investment The flow of resources into the production of new capital.

invisible hand In Adam Smith's classical theory, a force behind the self-interest of capitalists, merchants, landlords, and workers, directing their actions toward maximum economic growth in a competitive economy.

iron law of wages The theory of wages of the English classical economists that indicates that the natural wage is at subsistence. Wages above subsistence increase population whereas wages below subsistence contribute to deaths and labor shortages.

keiretsu Japan's post–World War II groups of affiliated companies loosely organized around a large bank, or vertical production groups consisting of a core manufacturing company and its subcontractors, subsidiaries, and affiliates.

kleptocracy A government run by thieves.

Keynesian theory of income and employment The theory developed by John Maynard Kenyes in the mid-1930s to explain economic depression and unemployment. Unemployment occurs because of insufficient aggregate demand for GNP to attain full employment or full utilization of resources of production.

kulaks Prosperous small Soviet landowners considered a class enemy by Stalin in the late 1920s and early 1930s.

Kuznets curve An inverted U-shaped curve in which inequality first increases and then decreases with growth of income per capita. The curve is named after Simon Kuznets, who statistically identified this relationship for DCs.

labor participation rate Ratio of the labor force to population.

labor supply elasticity Percentage change in quantity supplied/percentage change in wage, a key variable in the Lewis and Fei-Ranis models in determining the growth of the industrial sector.

laissez-faire Government noninterference.

law of diminishing returns The proposition that states that adding an equal extra input to fixed land will result in successively lower extra output.

learning curve A curve that shows how much labor productivity increases with cumulative experience.

least developed countries (LLDCs) A statutory United Nations list of countries based on a low combined score for the following indicators: per-capita GDP, human development (life expectancy, per capita calorie consumption, primary and secondary school enrollment, and adult literacy rate), economic diversification, and population (see UNCTAD's annual *Least Developed Countries Report)*. These countries are supposed to receive the majority of the aid provided by DCs .

less-developed countries (LDCs) Low- and middle-income countries, that is, those with a per-capita GNI of less than $9,000 in 2002, according to the World Bank. Although the margin of error is substantial and the boundary between categories rises each year with inflation, membership in the category has been relatively stable from the 1980s to the first decade of the 21st century.

Lewis–Fei–Ranis model An analysis that shows how economic growth in a less-developed country with a subsistence agricultural sector and an industrial capitalist sector occurs through the increase in the

size of the capital-accumulating industrial sector relative to the agricultural sector.

liberalism In economics, a school of thought that stresses freedom from the state's economic restraint. Present-day proponents of this view are often called "neoliberals," followers in many respects of the English classical economists of the late 18th and early 19th centuries such as Adam Smith and David Ricardo.

liberalization A country's movement toward the market, including a reduction in price controls, subsidies, regulations, and ownership of land and capital by the state.

LLDCs See *least-developed countries*.

London Club A venue for LDCs to renegotiate their foreign debts through agreements with commercial banks.

London Interbank Offered Rate LIBOR A virtually riskless interest rate used as a standard for comparing other interest rates.

Lorenz curve A graph that shows how much income inequality varies from perfect equality (0) or perfect inequality (1). See *Gini coefficient*.

low-income countries (LICs) Countries with a per-capita GNI of $950 or less in 2002. See *LDCs* for details.

macroeconomic stabilization See *stabilization*.

Malthusian view The view, named after the turn-of-the-19th-century English economist Thomas Robert Malthus, that population growth would grow faster than food supply. His contemporary followers, Neo-Malthusians, believe that Malthus's pessimism applies to less-developed countries.

managed floating exchange-rate system An international currency system where many major central banks intervene in the market to influence the price of foreign exchange.

marginal abatement cost (MAC) The extra dollar cost of reducing pollution emissions by one unit.

marginal damage (MD) The extra dollar cost from increasing pollution emissions by one unit.

marginal revenue productivity of labor The addition of revenue attributable to the last unit of labor.

market friendly Refers to systems or reforms that assign an important role to deregulation, price decontrol, privatization, and reduction of tariffs, subsidies, and transfers. Making these changes is expected to improve the efficiency of resource allocation.

market socialism An economic system that combines state ownership of the means of production with use of the market to allocate resources.

material balance planning Soviet-type planning involving detailed allocation by central administration of the supply and demand for basic industrial commodities.

middle-income countries (MICs) Countries with a per-capita GNI of more than $950 and less than $9,000 in 2002. See *LDCs* for details.

"missing" women An estimate of a country's deficit of females from infanticide and antifemale health biases compared to a benchmark or norm for the ratio of females to males (Sen 1993).

modern economic growth The rapid, sustained increase in per-capita GNP from substantial capital accumulation and technological progress since the last half of the 18th century and 19th century (Kuznets).

monetary policy Actions taken by a country's central bank to affect the money supply and the rate of interest.

monopolistic competition An industry structure characterized by a large number of firms, no barriers to entry, and product differentiation.

monopoly A single seller of a product without close substitutes.

monopoly advantages Advantages accruing to an entrepreneur or manager, from

greater opportunities, such as more economic information, greater wealth or position, superior access to training and education, larger firm size, lucrative agreements to restrict entry or output, and a lower discount of future earnings. These advantages contribute to higher profits.

monopoly rents Returns to a factor of production from being the only or nearly the only production factor in an industry or sector. These returns are often from a monopoly or near monopoly granted by government policy.

monopsony A market in which there is only one buyer.

moral hazard The risk associated with a loan in which the borrower has incentives to invest in projects with high risk where the borrower does well if the project succeeds but the lender bears most of the loss if the project fails. The prospect of "bail out" of failed projects by, for example, the International Monetary Fund and the international community means that borrowers are more likely to shirk or use funds for personal use or power.

multilateral aid Aid given to a country by an agency with several donor countries.

multinational corporations (MNCs) Business firms with a parent company in one country and subsidiary operations in other countries.

negative externalities External diseconomies or costs that a firm or actor imposes on the rest of society. For example, some population theorists contend that a couple that gains by an additional child may, however, increase the net cost of that child to society.

negative real interest rate A nominal rate of interest less than the inflation rate.

neoclassical counterrevolution A revolution in economic policy and analysis in response to the *dirigiste doctrine* that emphasized the importance of the role of the state in development. This counterrevolution, which initially took place during the 1980s and 1990s, emphasized economic liberalism and components of the Washington consensus.

neoclassical theory of growth Robert Solow's theory of growth that stressed the importance of savings and capital formation for economic development and for empirical measures of the sources of growth.

neoclassicism Economic theory and policy that stressed freedom from the state's economic restraint.

neoliberalism See *liberalism*.

net primary productivity (NPP) The total amount of solar energy converted into biochemical energy through the photosynthesis of plants minus the energy these plants use for their own life (Postel 1994).

net transfers Net international resource flows (investment, loans, and grants) minus net international interest payments and profit remittances.

new (endogenous) growth theory A theory that assumes that technology is endogenous or explained within the model. This theory contends that innovation or technical change is the engine of growth, and that this model is closer to the realities of international flows of people and capital than the neoclassical model.

newly industrializing countries (NICs) Countries who have recently become industrialized, such as South Korea, Taiwan, Singapore, and Hong Kong (China). Sometimes Mexico, Brazil, Malaysia, Thailand Turkey, Argentina, India, China, Portugal, and South Africa are included in this category.

***nomenklatura* system** Soviet bureaucratic system in which the Communist Party controlled the state by using the power to recommend and approve managers in administration and enterprises, and make appointments and promotions to government positions. During the post-Soviet period, many economists argue that the

nomenklatura still occupy the top positions in Russian society (Millar 1994:5–6).

nongovernmental organizations (NGOs) Organizations independent of the state, such as labor unions, private relief agencies, and scientific organizations.

oligopoly Competition among few sellers characterized by interdependent pricing decisions.

$1 per day poverty A real income international line for extreme poverty equivalent to $PPP1 in 1985 and $PPP1.45 in 1998, used to estimate the proportion of the world's population that exists at an income that secures the bare essentials of food, clothing, and shelter.

Organization for Economic Cooperation and Development (OECD) Club of the rich (high-income) countries of the world, viz., the United States, Canada, Western Europe, Japan, South Korea, Australia, and New Zealand. In addition, upper-middle-income Poland, Czech Republic, Slovak Republic, Hungary, Iceland, Turkey, and Mexico are members.

Organization of Petroleum Exporting Countries (OPEC) A cartel of petroleum exporting countries whose members have agreed to limit output and fix prices.

O-ring theory of economic development A theory of coordination theory that indicates that production consists of many tasks, all of which must be successfully completed for the product to have full value (Kremer).

overvalued currency Attaining a price of foreign currency (exchange rate) below the market rate through exchange controls and trade restrictions.

parastatal enterprises Public corporations and statutory boards owned by the state but responsible for day-to-day management to boards of directors, some of whom are appointed by the state.

Paris Club A venue for LDCs to renegotiate their foreign debts through agreements with official creditors.

patronage The establishment by the ruler of clientelist networks to distribute public offices, monopoly rents, or other rewards in return for political support.

patron–client system A patronage system between a superior (patron) and client (subordinate).

peasants Rural cultivators running households whose main concern is survival. Their contrast is to commercial farmers, who run a profit-oriented business enterprise.

perestroika The economic restructuring undertaken under Soviet leader Mikhail Gorbachev from 1985 to 1991.

Physical Quality of Life Index (PQLI) An alternative measure of economic welfare that combines three indicators – infant mortality, life expectancy, and adult literacy rate.

policy cartel The managed oligopoly of advice among Washington institutions, the International Monetary Fund, World Bank, and U.S. government. See also *Washington consensus*.

political elite This group includes not only individuals who directly or indirectly play a considerable part in government – political leaders, traditional princes and chiefs, high-ranking military officers, senior civil servants and administrators, and executives in public corporations – but also large landowners, major business people, and leading professionals.

political inflation Inflation arising from government failing to restrain wage and price demands arising from a struggle among a country's major economic interest groups.

population age pyramid A structure that shows the percentage distribution of a population by age and sex (see Figure 8-10).

population momentum The continuing increase in population after a society has reached replacement-level fertility as a result of an age structure with a relatively high percentage of women at or below reproductive age.

portfolio investment Financial investment by private individuals, corporations, and pension and mutual funds in stocks, bonds, certificates of deposits, and private and government notes. These are assets in which the investor has no control over operations.

Porto Alegre A Brazilian city that frequently hosts a major antiglobalization meeting, the World Social Forum, a rival to the annual World Economic Forum of the world's economic elites.

poverty line A real income measure, usually expressed in constant dollars (for example, $1 or $2 per day in 1985 PPP), used as a basis for estimating the proportion of the world's population that exists at an income that secures the bare essentials of food, clothing, and shelter.

poverty-weighted index An alternative to GNP growth that gives an equal weight to a 1-percent increase in income for any member of society. For example, a 1-percent income growth for the bottom 10 percent would be given the same weight in growth as a 1-percent income growth for the top 10 percent.

Prebisch–Singer thesis The thesis stating that the terms of trade deteriorated historically for primary product exporters because of the slower growth of demand for, and less favorable market structure for, primary product production relative to manufacturing production.

preconditions stage One of Walter Rostow's early stages, in which radical nonindustrial changes provide the prerequisite for the takeoff into self-sustained growth.

predatory ruler The ruler of a predatory state.

predatory state Rule by a personalistic regime ruling through coercion, material inducement, and personality politics, a regime that tends to degrade the institutional foundations of the economy and state.

preferential trade arrangement Regional integration that provides lower tariff and other trade barriers among member countries than between members and nonmembers.

present (discounted) value (*V*) The current market value of receiving a given amount of dollars in *t* years (or a stream of benefits and costs over the time period *t*).

price elasticity (of demand) The absolute value of the ratio of the percentage change in quantity demanded to the percentage change in price. For example, the increased price of a good, such as sisal used for fiber, by 10 percent, reduces the amount of sisal demanded by 20 percent, a price elasticity of 0.20/0.10 or 2.0.

(P) price level of GDP The ratio of the purchasing power parity (PPP) exchange rate to the actual (or market) exchange rate, where both exchange rates are measured as the domestic-currency price of the U.S. dollar.

price of foreign exchange The domestic currency price of foreign currency, for example Rs. 45 = US$1.

primary products Food, raw materials, minerals, and organic oils and fats.

privatization Policies that include changing at least part of an enterprise's ownership from the public to the private sector, liberalization of entry into activities previously restricted to the public sector, and franchising or contracting public services or leasing public assets to the private sector.

product cycle model A model that explains shifts in comparative advantage as a good becomes standardized, enabling LDCs to acquire an advantage while advanced economies, such as the United States and Japan, have an advantage in nonstandardized goods that require highly skilled labor and technological research and development.

production function A statement of the relationship between the amount of various inputs and capacity output.

productivity paradox The lack of positive relationship between information and

communications technology investments and productivity (observed in the 1980s).

progressive tax A tax in which people with higher incomes pay a larger percentage of income in taxes.

property rights Laws and mores pertaining to the rights of real estate and asset owners and users.

Protestant ethic The inner-worldly asceticism of 16th- to 18th-centuries' Protestantism that stimulated hard work, frugality, and efficiency that, according to Max Weber, stimulated the spirit essential for capitalist development in the West.

public enterprise See *state-owned enterprise*.

public goods Goods characterized by nonrivalry in consumption, so that an individual's consumption does not diminish the amount of good available for others, and nonexclusion in consumption, so that if one person consumes the good, then others cannot be excluded from consuming it.

Purchasing Power Parity (PPP) The exchange rate at which the goods and services comprising gross domestic product cost the same in both countries. Hence also the adjustment made to gross domestic product that reflects the country's purchasing power relative to all other countries.

ratchet inflation Inflation resulting from price increases with increased demand but no reduction in prices when demand decreases.

real domestic currency appreciation An increase in the value of the domestic currency relative to foreign currencies.

real domestic currency depreciation A reduction in the value of the domestic currency relative to foreign currencies.

real economic growth The inflation-adjusted rate of growth in gross product (or income) per capita.

real exchange rate The nominal exchange rate adjusted for relative inflation rates at home and abroad.

recurrent expenditures Expenditures in a given year that occur periodically from continuing programs.

regional integration A grouping of nations that reduces or abolishes barriers to trade and resource movements only among member countries.

regressive tax A tax in which people with lower incomes pay a larger percentage of income in taxes.

remittances Money that foreign nationals and immigrants send to their countries of origin.

rent seeking Unproductive activity to obtain private benefits from public action and resources.

replacement-level fertility The fertility rate in which the average woman of childbearing age bears only one daughter – her replacement in the population.

reserve army of the unemployed In Marx's analysis of capitalism, a cheap labor source that expands and contracts with the boom and bust of business cycles.

residual That part of an economy's growth in output per worker not attributed to increased capital per worker.

risk A situation in which the probabilities of future net returns occurring are known.

risk premium The interest-rate spread for LDC borrowers in excess of the London Interbank Offered Rate, a virtually riskless interest rate.

rules of origin Under free trade areas, regulations necessary to ensure that a majority of the value-added originates in member countries. For example, in the North American Free Trade Area (NAFTA), these rules prevent Asian and European companies from establishing assembly operations in which less than 50 percent of value-added originates in Mexico, using that country as a back door to U.S. and Canadian markets.

seigniorage The ability of the government or sovereign to extract resources from the

financial system in return for controlling currency issue and credit expansion.

shadow price A price that reflects the true opportunity cost of a resource.

sharecropping A tenure arrangement in which the landlord provides the land, some equipment, and a proportion of seed and fertilizer in exchange for a proportion of the final crop.

"shock therapy" An abrupt transition by a former socialist country to adjustment and the market.

single factoral terms of trade The commodity terms of trade times change in output per combined factor inputs.

social benefit–cost analysis A standard investment criteria that states how you maximize net social income associated with a dollar of investment.

social capital "Features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit." Social capital, similar to other forms of capital, enhances individual productivity (Putnam 1995).

social goods Goods or services that bestow collective benefits on members of society. Such goods are characterized by nonrivalry and nonexclusion in consumption.

socialism The economic system in which government owns the means of production.

socialization The process whereby personality, attitudes, motivation, and behavior are acquired through child rearing and social interaction.

social profitability Differences between social benefits and social costs.

social safety net Social spending on food and other income subsidies, health, and education that enhances a person's economic security.

soft budget constraint An absence of financial penalties for enterprise or project failure, more likely to occur under a socialist or postsocialist transitional government.

special drawing rights (SDRs) Bookkeeping entries in the accounts of member countries of the IMF used as an internationalized currency by central banks for official transactions with the IMF and other central banks.

stabilization Monetary, fiscal, and exchange-rate policies to attain an optimal trade-off between domestic economic growth and price stability (internal balance) and between internal balance and external balance, that is the international balance on goods and services.

stagflation When the overall price level (inflation) rises rapidly during periods of recession or high unemployment (stagnation).

Stalinist development model The centralized planning undertaken with Communist Party dictation of preferences, state control of capital and land, high rates of investment in the capital-goods industry, collectivization of agriculture, the virtual elimination of private trade, a state monopoly trading, and a low ratio of foreign trade to GNP used by Soviet leader Joseph Stalin from 1928 to his death in 1953.

standard deviation Square root of the variance.

state failure See *failed state*.

state legitimacy The recognition by the society of the government's right to rule and the inclusion of all its members in decision making.

state-owned enterprise (SOE) An enterprise (1) in which government is the principal (not necessarily majority) owner or where the state can appoint or remove the chief executive officer (president or managing director) and (2) that produces or sells goods or services to the public or other enterprises, in which revenues are to bear some relationship to cost.

stationary population A population whose growth is zero.

stationary state An unchanging economic process, before the entry of an entrepreneur or innovator, that merely reproduces itself at a constant rate (Schumpeter).

stock A variable with no time dimension. An example is the stock (amount) of coal deposits below the ground.

structural adjustment See *adjustment*.

structural economists Economists, many of whom are affiliated with the United Nations Economic Commission for Latin America (ECLA) or HYPERLINK "http://www.eclac.cl/" Comisión Económica para America Latina y el Caribe (CEPAL), that emphasizes the necessity for long-run institutional and structural economic change–accelerating the growth of export earnings, improving the external terms of trade, increasing the supply elasticity of food output through land reform, reducing income inequality, and expanding the industrial sector and antimonopoly measures before shorter-term financial and exchange-rate policies would be effective.

surplus Output minus wages, depreciation, and purchases from other units.

sustainable development Economic growth that results in the survival of the human species and the maintenance of the productivity of natural, produced, and human assets from generation to generation.

takeoff Walter Rostow's central historical stage, a decisive expansion occurring over 20 to 30 years, that radically transforms a country's economy and society, so that growth becomes the normal condition.

target variables Goals set by planners, including growths of manufacturing, agriculture, and annual GDP; poverty reduction; and balance of payments position.

tariff rate The import tax as a percentage of the price of a good. For example, if the price of a shirt is $20 and the import tax on that shirt is $8, the tariff rate is 8/20 = 40 percent.

technical progress See *total factor productivity*.

technology Technical knowledge, connoting the practical arts, ranging from hunting, fishing, and agriculture through manufacturing, communication, medicine, and electronics. All known processes transforming inputs into outputs.

terms of trade See *commodity terms of trade*.

theory A systematic explanation of interrelationships among economic variables to explain causal relationships among these variables.

third world The low- and middle-income economies or less-developed countries. Sometimes the term is used to refer to Asian, African, and Latin American less-developed countries.

Tobin tax A tax on all foreign-exchange transactions, levied to discourage short-term (especially speculative) capital movements, on which the burden of the tax is substantial. The author, James Tobin, suggests that each country tax transactions originating in its country at one-tenth of 1 percent per dollar per transaction.

total external debt (EDT) The stock of debt owed to nonresident governments, businesses, and institutions and repayable in foreign currency, goods, or services.

total factor productivity (TFP) Output per combined factor input. TFP growth is a measure of technical progress.

total fertility rate (TFR) The number of children born to the average woman during her reproductive years.

township and village enterprises (TVEs) Chinese rural enterprises that were initially organized as cooperatives, but later took other forms, such as joint-stock cooperatives, limited liability companies, or even private firms. In the 1980s, TVEs, taking advantage of cheap labor, startup capital, and land, produced 60–70 percent of rural output.

trade creation Formation of a regional trade organization resulting in imports from another member country displacing higher-cost domestic production. Economists

argue that this creation increases total welfare.

trade diversion Formation of a regional trade organization resulting in imports from a member country displacing imports from a lowest cost third country. Economists argue that this diversion reduces total world welfare.

"tragedy of the commons" The principle that people overuse and degrade a resource free for all to use (Hardin).

transactions costs Costs of information, coordination, bargaining, monitoring, and enforcement of agreements or contracts.

transparency The quality of a government being open, accessible, frank, and disclosing information (Stiglitz 2002e).

turnkey projects Investment projects in which foreigners, for a price, provide inputs and technology, build plant and equipment, and assemble the production line so that locals can initiate production straightaway.

$2-per-day poverty A real income international line for poverty equivalent to $PPP2 in 1985 and $PPP2.92 in 1998, which provides for consumption in excess of the bare physical minimum, but varies from country to country, reflecting the cost of participating in the everyday life of society, for example including indoor plumbing and potable water as a necessity in some countries.

unbalanced growth A deliberate, predesigned strategy to unbalance the economy, making current investments to create linkages and thus spur subsequent investments (Hirschman).

uncertainty A situation in which the probabilities of future net returns occurring are unknown.

unconditional convergence Convergence without considering changes in control variables.

underemployment A form of labor underutilization referring to those who work less than they would like to work. Expressing this as a rate usually involves spurious accuracy, as there are no operational guidelines for measurement.

unemployment The status of those in the labor force without work but available and seeking employment. The unemployment rate is a percentage of the labor force (employed plus unemployed).

United Nations Conference on Trade and Development (UNCTAD) The U.N. organization devoted to the economic interests of the Asian, African, and Latin American less-developed economies.

unlimited supply of labor An infinite elasticity of labor at a given wage, as assumed in the Lewis model. In this model, urban industrialists can attract an unlimited supply of labor migrants from the subsistence agricultural sector.

urban bias Government policy that allocates disproportionate benefits to cities, including tax concessions, prices and exchange rates, and spending on education, health, and infrastructure.

Uruguay Round The 1986–94 negotiations under GATT before GATT was superseded by the WTO.

usufruct Right of use, as with land.

value-added The difference between the value of goods as they leave a stage of production and the cost of goods as they entered that stage.

value-added tax (VAT) A tax on the difference between the sales of a firm and its purchases from other firms. The appeals of this tax are simplicity, uniformity, the generation of buoyant revenues, and the enabling of a gradual lowering of other tax rates throughout the system.

variance The average squared deviation of each number from its mean, a measure of how spread out a distribution is.

vertical integration Decision coordination between a producing unit and its upstream suppliers and its downstream buyers.

vicious circle The perpetuation of poverty through mutually reinforcing negative feedback on both supply and demand sides.

virtuous circle A dynamic process in which growing countries save more, contributing to continuing faster growth.

voice option Expressing dissatisfaction and attempting to change the practices or products of an organization or firm when unhappy with an objectionable state of affairs. When the "exit" option is not available, as under a monopolistic market, "voice" may be the only option. The term was coined by Albert Hirschman.

Wagner's law The proposition that states that as real GNP per capita rises, people demand relatively more social goods and relatively fewer private goods.

Washington consensus A basic agreement by Washington-based institutions, the World Bank, International Monetary Fund, and U.S. Treasury, on international economic policies toward LDCs. This consensus is derived from neoclassical economics, dominated by orthodox economists trained in the United States and United Kingdom and especially associated with the views of U.S. President Ronald Reagan and U.K. Prime Minister Margaret Thatcher during the 1980s. See also *liberalism*.

workfare The payment of food or low wages in exchange for work, increasing the probability that only the poor will select this antipoverty program.

World Bank (International Bank for Reconstruction and Development or IBRD) The agency created in 1944 at Bretton Woods, New Hampshire, charged with loans for the development of LDCs and (initially) postwar reconstruction.

World Economic Forum An annual meeting of many of the world's economic elites that celebrates the advances of globalization. See also *Davos*.

world's middle class (1) Countries with a real GDP per capita less than that of Italy and more than that of Brazil (Milanovic and Yitzhaki 2001), or (2) individuals with annual PPP incomes between $3,650 and $14,600 at 1993 prices (Bhalla 2002).

World Social Forum An annual meeting of antiglobalization forces, a rival to the annual World Economic Forum of the world's economic elites. See also *Porto Alegre* and *antiglobalization*.

World Trade Organization (WTO) A multilateral organization of market economies that administers rules of conduct in international trade. WTO maintains continuity with the General Agreements on Tariffs and Trade, whose precedents WTO recognizes. See also *General Agreements*.

worker-managed socialism A form of market socialism that combines state ownership and worker control of the means of production with use of the market to allocate resources. Under this economic system, a workers' council controls the firm's means of production, hiring managers to carry out decisions in the interest of the workers of the firm.

zero marginal revenue productivity of labor No change in revenue attributable to the last unit of labor, that is, adding or withdrawing a labor unit from a firm or sector does not decrease output.

Bibliography

Abbreviations

AEA	American Economic Association
AER	*American Economic Review*
CUP	Cambridge University Press
EDCC	*Economic Development and Cultural Change*
EJ	*Economic Journal*
F&D	*Finance and Development*
IIE	Institute for International Economics
JDE	*Journal of Development Economics*
JDS	*Journal of Development Studies*
JEH	*Journal of Economic History*
JEL	*Journal of Economic Literature*
JEP	*Journal of Economic Perspectives*
JHUP	Johns Hopkins University Press
JPE	*Journal of Political Economy*
NBER	National Bureau of Economic Research
NYT	*New York Times*
OUP	Oxford University Press
QJE	*Quarterly Journal of Economics*
SSRN	Social Science Research Network
UNU	United Nations University
UNU/WIDER	UNU/World Institute for Development Economics Research, Helsinki, Finland
WB	World Bank
WD	*World Development*
WP	Working Paper
WSJ	*Wall Street Journal*

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